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BROAD VERSUS DEPARTMENTAL TRAINING OF TEACHERS

From the North Texas State Teachers College has recently come a bulletin reporting *A Study of High School Positions in Texas*. The author is L. A. Sharp, director of the local Demonstration School. The study is another in a long list of investigations reported during the past fifteen or twenty years that unquestionably establish the complexity of teaching assignments as indicated by the number of different subjects in which individual teachers are typically required to give instruction.

For the sake of renewing for the reader the dominant impression of complexity left by these studies, we illustrate from certain findings of this new study of positions in Texas. Instructors of academic subjects much more often teach these subjects in combinations with one or more other subjects than they teach these subjects alone. This condition is true for all academic subjects in Sharp's classification excepting mathematics, which is reported as a single-subject responsibility for slightly more than half the teachers. Only the teachers of special subjects, like agriculture, art, commerce, home economics, mechanical drawing, music, physical education, and shopwork, are privileged in a majority of instances to give in-

1

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struction in a single specialty—a situation arising from the fact that teachers of academic subjects are usually devoid of preparation for the special subjects or that teachers of these specialties are regarded as unequipped in academic subjects.

This study by Sharp does not include, as do certain earlier investigations of the problem, comparisons of teachers' programs in small and large schools. The situation as to complexity of programs and diversity of combinations is always greater in small than in large schools. It surely cannot add to one's peace of mind, in considering this problem, to recall that the majority of secondary schools in this country are small.

One type of evidence in the bulletin both exemplifies the complexity and is prophetic of a possible solution of the problem of preparing teachers in subject matter. There is great diversity in the combinations, but in the study of each academic subject it is usually found that one combination emerges more often than any other. In mathematics, the most frequent combination is mathematics and science; in chemistry, it is chemistry and mathematics; in civics, it is civics and history; in English, it is English and Spanish; in French, it is French and Spanish; in Latin, it is Latin and English; and in physics, it is physics and mathematics.

The possibility of solving the problem of complex teaching programs implicit in these recurrent combinations calls to mind the report of a committee of the Association of American Universities submitted to that body at its sessions in the early autumn. The committee is one which was asked "to consider and report on the program of graduate study which institutions of higher education should organize for the preparation of secondary-school teachers." The committee included Lotus D. Coffman, William J. Robbins, and Charles H. Judd (chairman). Following are "the statements which [the committee] believes the Association of American Universities might advantageously adopt as guides to its member institutions in organizing programs for the preparation of secondary-school teachers."

1. The trend toward the requirement of study beyond the baccalaureate degree for all teachers in secondary schools is to be highly commended.
2. A systematic program of study beginning with the Junior year of college

should be recommended to all candidates for teaching positions in secondary schools. Such a program should be based on a broad foundation of cultural studies largely completed by the end of the Sophomore year. It should include (a) preparation in one or more fields of study rather than intensive specialization in a single department and (b) special professional preparation adequate to insure that the candidate will be able to conduct secondary-school classes intelligently.

3. Each institution engaged in the preparation of secondary-school teachers should undertake a study of the problem of assisting secondary schools in the light of its local conditions. Such a study should be a joint effort on the part of members of subject-matter departments and those interested in, and acquainted with, the professional aspects of education.

4. Educational institutions which prepare teachers for secondary schools should be equipped to give courses of high scholarly grade. Such institutions should insure the cultivation in students of a professional attitude and a profound respect for the teaching profession.

5. No institution which tolerates lack of co-ordination, or exchange of petty recriminations, between the departments concerned with the preparation of secondary-school teachers should be regarded as competent to prepare teachers.

While almost all these statements have some bearing on the special issue of preparation of teachers in subject matter, the portion of the second which recommends broad "preparation in one or more fields of study rather than intensive specialization in a single department" is particularly germane. Preparation in a broad field, or area, would go even farther toward correcting present deficiencies than would preparation of prospective teachers in two or even three or more subjects. We can take the space to quote only one more paragraph of the discussion portions of this committee's report which lead up to the numbered statements.

As graduate work is now organized in American universities, it favors those who are preparing in comparatively narrow specialties. Students who are preparing to teach in secondary schools and recognize the desirability of getting a broad education rather than a highly specialized training find themselves out of harmony with the ordinary requirements for the higher degrees. If such students take the courses which serve their purposes best, they must often take courses which do not give them credit toward their degrees. On the other hand, many Masters who felt themselves compelled to specialize have gone out into positions only partly prepared for the teaching required of them. Not a few students solve the problem of securing a degree with a minimum number of courses by taking courses in education rather than courses in subject-matter departments.

Beyond all the complexity of teaching programs (accentuated as it is by the small staffs in small schools) that should bring conviction of the desirability of preparing teachers in broad fields, or areas, is the unmistakable trend in the curriculum at secondary-school levels. That trend is toward the general and "integrated" and away from separatistic departmentalism.

In the junior high school over a long period, courses in grammar, language, spelling, reading, and literature have been giving way to courses in "English"; courses in arithmetic and algebra, to courses in general mathematics; courses in special shop lines, to general industrial training; and courses in the different languages, to courses in general language. At the junior-college level, and to a greater extent in colleges and universities than in the junior colleges themselves, there is a notable shift from departmental courses to general, or survey, courses. The trend at the senior high school level is lagging behind those above and below, but it is without question on the way: witness the new general courses in science at this level among the innovations reported in the last several issues of the *School Review* in our feature "Here and There among the High Schools."

One may not see his way to follow extremists in the trend, who sometimes urge the abandonment of all distinctions between subjects, and still concede the need of realigning subject boundaries in the interests of a more functional education. At the very least, the trend will require an intimate intracorrelation of subject matter within broad fields. Whatever the outcome of tendencies as to metes and bounds of subjects, preparation of teachers must be comprehensive of the areas included within such fields.

Some may contend that, if or when general courses become more prevalent, it will be best to parcel out responsibilities for instruction in them to different teachers in harmony with the specialized scholarly equipment of those teachers; for instance, in a survey course in social science to have an economist teach the portions of the course predominantly economic, a sociologist those portions predominantly sociological, etc. Certain of the survey courses at the junior-college level have been and are being so administered. In such a plan, it might be argued, it will be possible to continue the preparation of

teachers as departmental specialists. However, the plan violates a basic assumption in offering general courses—that students will be able to integrate the subject matter within the broad fields represented. It is a fair question to ask whether students can be expected to organize into a coherent whole subject matter which, the plan admits on its face, the individual departmental specialists are unable so to organize. It appears that the use of a number of specialists in a general course can be condoned only as a temporary arrangement and should not be regarded as a permanent instructional solution.

A VISUAL AID FOR INSTRUCTION IN DENTAL HEALTH

The American Dental Association, through its Bureau of Public Relations, of which Dr. Lon W. Morrey is supervisor, has prepared for distribution to junior and senior high schools a set of eight charts for use in dental-health education. The charts are in color and are about two by three feet in size. Titles of the eight charts are: "The Teeth," "The First or Deciduous Teeth," "The Second or Permanent Teeth," "Diet and Teeth," "Dental Care," "Mouth Hygiene," "Preventing Decay of the Deciduous Teeth," and "Preventing Decay of the Permanent Teeth." The charts are usable in all courses giving attention to dental hygiene, such as hygiene, biology, and home economics. The charts may be secured for \$1.00 a set from the association at 212 East Superior Street, Chicago. Sets of ten or more are sold at graduated discounts.

A BOOK LIST FOR LIBRARIES IN SMALL HIGH SCHOOLS

From the Bureau of Co-operation with Educational Institutions at the University of Michigan has been received a copy of "A List of Selected Books for High School Libraries." The list was prepared by the Library Extension Service of the University, with Miss Edith Thomas in charge, and is based on recommendations of the faculty who are department consultants for the bureau and on suggestions from teachers in representative high schools of the state. It is in mimeographed form extending through about forty pages. The entries are classified under the following topics: "Reference Books"; "Philosophy and Ethics"; "Religion"; "Social Sciences"; "History"; "Science"; "Useful Arts"; "Fine Arts"; "Fairy Tales, Myths, and

Legends"; "Languages and Literature"; "English and American Literature"; "Biography"; "Travel"; "Magazines"; and "Newspapers." Textbooks are not included. A list of publishers, with addresses, is appended. George E. Carrothers, director of the Bureau of Co-operation, reports that copies of the list have been distributed to the smaller high schools of the state, about four hundred in number, at a time when budgets are expanding and increased outlays are being made for material facilities.

THE STATUS AND AVAILABILITY OF EDUCATION FOR NEGROES

Two recent publications of the United States Office of Education deal with the education of negroes: *Availability of Education to Negroes in Rural Communities* and *Statistics of the Education of Negroes, 1929-30 and 1931-32* (Bulletins Numbers 12 and 13, 1935). The study of availability, by Ambrose Caliver, senior specialist in the education of negroes, discloses deplorable conditions in areas in six states of the South. The bulletin on statistics is written by David T. Blose, assistant statistician, and Caliver. The evidence reported in this bulletin was gathered from seventeen southern and border states and the District of Columbia, which maintain separate systems for negroes and whites. The bulletins are distributed at ten cents each by the Superintendent of Documents, Washington, D.C.

SUPERINTENDENT TILDSLEY REMONSTRATES

In this section of the *School Review* for last June, under the caption "Another Mistaken Plea for Segregation by Ability," the editor commented unfavorably on what he understands to be the chief proposal in the Inglis Lecture of a year ago, delivered by John L. Tildsley, assistant superintendent of schools in New York City. The lecture was published under the title *The Mounting Waste of the American Secondary School*, and the proposal envisaged a three-track system of secondary schools for pupils of three levels of ability. A few weeks ago the following rejoinder to our unfavorable comment was received from Superintendent Tildsley. His letter is quoted in full both because he is entitled to space for reply and because readers will find his statement interesting.

I have just read again the opening editorial comment of your issue of June . . . entitled "Another Mistaken Plea for Segregation by Ability."

When I read it first, it did not seem to me worth while to answer it, but on a second reading after an interval of four months, I feel I would like to voice a criticism of your editorial.

In this editorial your writer refers to a previous comment on Abraham Flexner's proposal of a few years ago of a separate school for bright pupils "to the effect that such a school was neither necessary nor desirable." Criticizing my recommendation, he says, "The grounds for the proposal are the results from tests of intelligence and reading." You further state that "the lecturer does not raise the question of whether, with such large numbers of pupils involved and such large proportions found low on the tests, the 'norms' might not be at fault."

You thus give your readers the impression that I am recommending the establishing of segregated schools for bright pupils on the basis of two tests, the norms for both of which may have been faulty. A second reading by him of my lecture would reveal that the results of these two tests were but a very small part of the evidence on which I based my conclusions. I took into consideration in addition to these tests, as stated in the lecture, a very comprehensive and intensive knowledge of the product of our elementary schools for over thirty years, for from 1908 to 1916 I was principal of a general and then of a commercial high school. Since 1916 I have been first in charge of the high schools in New York City for four years, then charged with the improvement of instruction for sixteen years. There has not been a year that I have not received reports on the work of the incoming pupils. My lecture clearly indicates this.

Some five years ago I made a survey of the commercial education in this city with the aid of the director, some 36 chairmen of departments, and 600 teachers. At that time we tested 7,000 pupils in arithmetic, geography, spelling, reading, and English, using the New York State Pre-academic Tests based on the syllabi used in our schools and found that but 31.8 per cent could pass the arithmetic, 24.5 the English, and 20.7 the geography. Furthermore, our report carried 50 pages of testimony as to the deficiencies of the incoming pupils as the basic reason for the quality of work done by the commercial pupils.

I have made study after study. I have been in active touch with the teaching of our high-school pupils which have grown in number from 59,000 to 250,000 in the last sixteen years and a teaching body grown from 3,000 to 8,000 during that period. No high-school official in this country has been in touch with as extensive a field as this or in as intimate contact with as many high-school principals and teachers.

Many of my former teachers are now principals of elementary schools, and I have kept in touch with their work. I refer in my lecture to a report from one of them.

Year after year in official reports to the Board of Education and in public addresses, I have called attention to the utter inability of at least 20 per cent of the entering pupils to do any work which the high schools are equipped to

give. I have made the statement that we were carrying in our high schools no less than 50,000 pupils who cannot profit from the work we are giving them.

But our high-school principals have not been idle. They have constantly modified content and methodology in every subject. One high school last year had 900 backward pupils in a straight promotion course and another 700, with very great changes made in content and teaching. So far nearly every one of these plans has served only to reduce the demands made upon all students and to impair the quality of education received by practically all of the 250,000. The vast majority of the teachers would support my recommendation for segregation of pupils and deflection of at least the lowest fifth to one-third to special schools. This proposal comes from persons who have lived with the problem for years, who are presumably as much in touch with education generally as your writer, who know children just as well. And yet you head your editorial "Another Mistaken Plea." Frankly, what right have you to say it is mistaken? Your writer probably knows little or nothing about New York conditions. I have been busied with them for thirty-eight years. I have expressed this judgment many times based on a mass of valid evidence. I keep in touch with education in other communities than my own.

The problem I discussed involves the well-being of 50,000 boys and girls directly, who are now maladjusted and a waste as I see it of some \$6,000,000 to \$8,000,000 a year in our handling of the problem of the maladjusted pupils at the lower end. In addition to this the problem involves the proper education of at least 40,000 boys and girls of superior learning capacity who are not being made to grow to anything like their full capacity. Whose opinion is worth more, your writer's based not on knowledge of the field and the conditions, but on experience with very different conditions or that of Flexner and myself who have minute and comprehensive knowledge of the factors involved in the problem? Your writer assumes as axiomatic, the inadvisability of the segregation of pupils. By what right? He says it is unnecessary. On the basis of what evidence? Your writer's statement that "the establishment of separate schools for pupils of different abilities is undesirable . . . because it would be undemocratic," is pure twaddle. It entirely begs the questions: When is anything democratic or undemocratic? What do we mean by democratic?

Your writer is again disturbed over the question as to "how the dominating educational conceptions of a prominent administrative officer in our largest urban system could remain so unaffected as they appear to have been by the extensive social and educational trends of the generation or more over which his contacts with the system have extended."

Allow me to assure him it is not due to ignorance of these trends. I was formerly a teacher of economics and principal of a high school of commerce. My special field in supervision is social studies. I have spoken frequently and written on various phases of this field. I have been, since its foundation, a regular attendant of Briggs Secondary Education Group and of the Scholia Club of Teachers College, the stamping ground of the "Frontier Thinkers" in education,

where for twenty-five years I have heard all the great discoveries of these thinkers discussed before they appeared in print. I have been serving for the past five years on a committee of the Progressive Education Association with Eugene Randolph Smith as chairman, which deals with the reports and tests for the thirty schools in the "eight-year plan," and in the hundreds of hours spent with this very able committee I have been exposed to the very latest emanations from the progressive schools.

I am giving you all this information for one purpose only and that not to rehabilitate myself in the estimation of your editorial board.

In my Inglis Lecture I discussed the most important problem in secondary education. I brought to bear upon it a thorough study following probably the broadest experience with high-school conditions of any educator in this country. During my twenty years at the central office I have read literally many thousands of pages of the testimony of teachers, chairmen, and principals bearing on this problem. I have not been a hermit. I have been a constant participant in educational discussions. And because I have arrived after years of careful consideration at a conclusion which differs from that of your writer, a conclusion shared by thousands of the members of our high-school staff and incidentally by most foreign educators, your writer stamps it as just "Another Mistaken Plea for Segregation by Ability" and wonders how the writer can be so untouched by social and educational trends.

Is that the proper attitude for the editor of what ought to be a scientific journal?

Please do not misunderstand me. This is not personal. You can readily see that the opinion of this writer is of little concern to me. But this problem which involves the lasting welfare of millions of boys and girls and ultimately the destiny of the nation itself ought not to be dismissed by your journal in this contemptuous fashion. The condition of secondary education in a large proportion of the schools of this country is a scandal. Assuming that I am wrong, what has the *School Review* to offer as a solution for the steady degeneration of the quality of education in the high schools of our large cities at least in this country?

The length of the letter precludes further comment in any detail. Answer is made only to the question of what the *School Review* has to offer as a solution. The answer must be by reference to the content of this journal, which has for years been publishing materials helpful in solution of the problem of differentiation to serve diverse needs of pupils. We may mention, for example, articles in the issues of the current school year, like Homer J. Smith's "The Need of the Newer Subjects," Francis D. Curtis' "Specific Suggestions for Teaching Dull-normal Pupils," E. C. Cline's "Selectivity and Standards in American Secondary Education," and Paul R. Pierce's

"Major Steps in Reorganizing a High-School Curriculum." To these and other articles may be added items in our feature "Here and There among the High Schools," many of which are innovations directed toward differentiating the school's program to meet widely differing abilities and interests. It deserves bearing in mind that not one of these articles or items calls for segregation in separate schools; all propose or describe practices *within* individual schools. The same thing may be said of the wide array of provisions for individual differences analyzed in Billett's great monograph in the report of the National Survey of Secondary Education, which was commended to the doubter's attention at the time of first criticizing the lecturer's proposal.

We have heard much in recent months of "the American way." Differentiation within the same school may properly be regarded as "the American way" in secondary education. Differentiation by segregation in separate schools is the practice of peoples characterized by social stratification and, therefore, the stereotype of "foreign educators." For an American to propose it smacks of naïveté.

HERE AND THERE AMONG THE HIGH SCHOOLS

The items reported for this feature of the *School Review* continue to come in from widespread sources. Practices described below have been carried on in nine school situations in eight states scattered from coast to coast. The phases of school activity represented are hardly less diverse.

A core curriculum for retarded pupils.—Armstrong High School, an institution in Washington, D.C., stressing technical training, was among schools selected in which to work out the character-education experiment made possible by a special congressional appropriation in 1934 which had been urged by Senator Copeland of New York. As described by G. David Houston, principal, the new program "brought with it such modern pedagogical blessings as counselors, enrichment and flexibility of the curriculum, and reasonable latitude in reaching out into untried fields, without fear of violating sacred orthodoxy. Consequently, the experiment gave rise to many innovations, one of which was the setting-up of the core curriculum to meet the needs of many pupils who had virtually been unacquainted

with the taste of success." The main features of the plan are described as follows:

With no disturbance to the regular academic and technical program of the school, a core curriculum was planned for the retarded pupils in the hope that these pupils might become more interested in, and better adapted to, the routine school life and the problems which confronted them. The group consisted of those who had failed in two or more subjects and ostensibly had no interest in school activities. The desire of the teachers was to promulgate a program that would appeal to the immediate interests of the pupils concerned. Since sociology is a vital and dynamic subject, it was selected as the core. Science and English were integrated with it.

Three teachers were assigned to teach, respectively, sociology, science, and English. Collaborating with these three teachers were the heads of the three departments concerned, together with a curriculum expert connected with the office of the assistant superintendent in charge of the character-education experiment. The work for the year was divided into the following units: (1) "You and Yourself," (2) "You and Your Responsibility," (3) "You and Your Vocation," (4) "You and Your Home," and (5) "You and Your Community."

The description of the five units provided by Principal Houston cannot be quoted in full. In the first unit pupils studied the forces which make up their personality—heredity and environment. The second unit dealt with "the problem of the pupils' adjusting themselves to their environment." In the third unit the teacher of social science emphasized the types of personality required for various occupations. The importance of co-operation in the family circle and methods of improving the home were stressed in the fourth unit.

The climax of the experiment was reached in the last unit, "You and Your Community," probably because of its scope and its profound interest. The church, school, public library, leisure, and crime are just a few of the issues which were developed. The crime project was especially noteworthy. It was initiated with a visit to the Federal Bureau of Investigation, after which discussions concerning the causes and cure of crime, a study of the types of criminals, and a perusal of newspapers and detective stories were presented.

In his statement in appraisal of the experiment, Principal Houston refers to the "regular attendance of erstwhile truants," reduced failures of pupils who had habitually failed, the expressed preference of the group for the core type of curriculum, and the group's renewed interest in school life.

Progress toward a basic curriculum.—From the Burbank, California, schools has been received the report of "A Tentative Basic

Curriculum," which is the product of several years of labor by a curriculum commission headed by J. Murray Lee, director of the Division of Individual Guidance. Of particular interest to our readers are the portions planned for junior and senior high schools, but too much space would be required to give here an adequate impression of the character of the new program. In a letter Director Lee indicates the following as the "unique points" of the report:

(1) The utilization of the thinking of the entire staff and the leadership furnished by the principals; (2) a statement of educational beliefs, developed cooperatively as a result of staff criticism; (3) an emphasis on modern problems as a means of approach; (4) a scope and sequence differing considerably in places from other proposals; (5) a sequence from nursery school through Grade XII; (6) the replacement of formal English by functional English in the basic courses; (7) the differentiation between units and aspects and the list of units; and (8) the development of a group-guidance program through the basic teachers and the elimination of the home room.

Programs of guidance in three schools.—Three statements in description of programs of guidance in three schools in widely separated states have been submitted. The Pipkin Junior High School of Springfield, Missouri, is this year placing major emphasis on guidance. According to the principal, V. M. Hardin, a definite plan has been set up for co-ordinating the various activities of the school in relation to the problem of guidance, and criteria have been agreed upon for determining precisely what is to be expected of each activity. The outline of the program lists "Routine Provisions for the School Day," "Home-Room Functions," "Clubs," "The Assembly," "Playground Activities," and "Classroom Activities."

A. T. Stanforth, principal of the Sewanhaka High School at Floral Park, New York, has submitted an outline of guidance activities, the purpose of which "is to assist the individual pupil to utilize his abilities and interest in a manner most conducive to his educational progress, social adaptability, and personal happiness and to develop patterns of physical, intellectual, and emotional behavior which will advance both his own interests and the welfare of society throughout his life." The activities are outlined under four "approaches," namely, a "preliminary approach," a "routine approach," a "group approach," and an "individual approach." The preliminary approach includes the administration of certain standardized tests, a

physical examination, and a review of pertinent data relating to the pupil's elementary-school activities. The routine approach includes matters of registration, attendance, and truancy, as well as certain activities of class and home-room advisers. The group approach includes a special home-room program for each of the four classes in the school. The individualized approach relates to education, vocation, and personality. A set of forms has been devised by the guidance department to aid in administering the program in its individualized aspects.

The program of the La Grande (Oregon) High School is described in a sixteen-page mimeographed bulletin, which has been submitted by the principal, W. E. Snyder. The headings of the bulletin, except the introduction and conclusion, are: "The Need for Guidance," "The Meaning of Guidance," "Goals of Our Guidance Program," and "The Guidance Organization." Under the last caption are discussed the principal, director of guidance, committee, deans, counselors, placement director, class advisers, home-room teachers, and classroom teachers.

"A simple nontechnical report" on a system of secondary schools.—Under the heading *The Hopes of Every Age*, the superintendent of the Compton (California) Union Secondary School District, Scott Thompson, issues a novel form of report to the Board of Trustees, parents, and citizens of the district. The report is in two main parts, the first dealing with the junior college, which at Compton includes four years beginning with Grade XI. The second deals with the five junior high schools of the district, which enrol Grades VII, VIII, IX, and X. Although the report contains much of the essential information presented in typical reports to school boards, the manner of presentation is novel in that it is written in nontechnical language and is otherwise popularly developed under such titles as "The Kindly Considerate School," "The Sociable School," "The Growing School," "Good Sportsmanship," and "The Economical Schools." Accompanying the report is a blank addressed "To Parents and Citizens," which requests them to check the names of the chapters that they have read and solicits their opinions about the report.

More forms for field trips.—In this feature, "Here and There among the High Schools," the September, 1936, *School Review* car-

ried a brief description of a "release form" for field trips in use in the high school at Wethersfield, Connecticut. The report prompted R. Preston Shoemaker, Jr., principal of the high school at Salem, New Jersey, to submit copies of two field-trip forms in use in the institution of which he is head. One of the forms is similar to that used in Wethersfield by serving as a release of the school and school authorities from responsibility for injuries, but it also includes reference to the pupil's making up school work missed during a trip, payment by the pupil of a share in the cost of the trip, and acceptance by the pupil of the teacher as authority in charge of the trip. The second form is an "Educational Field Excursion Report Form" filled out by the teacher, which provides spaces for entry of the date, time, teacher in charge, place, location, purpose, number of pupils of each sex, any other information (illness, injuries, special features, transportation used), recommendations for future trips, statement of when and how arrangements were made for the visit of the party, and signature of the teacher with date of reporting. Principal Shoemaker finds that the second form serves many useful purposes in checking on the plan and character of the trip.

A custodian who is much more than a janitor.—We quote most of the description of a custodian in the Rayen High School of Youngstown, Ohio, provided by the principal, F. F. Herr.

In some ways the most remarkable thing in Rayen High School is the custodian. Janitors, as they are usually called, may make or break a school. They are frequently at war with most of the teachers and complain about everything that they are asked to do. Often they are careless in their appearance, going about unshaven and disheveled. They may resent being told to do things which are not exactly pleasant but which still have to be done, and they take their own time in the performance.

Such is not the picture I wish to present. Ours is a custodian, a real guard who is on watch at all times to be of service to teacher and pupil. He mingles freely with members of the faculty and is always welcome at their doings. He is well read and is interesting in discussion. No matter how dirty the job, he soon appears clean and neat. He always has a cheery word for the pupils and often lends them a helping hand in settling their difficulties. So popular is he that no rally is complete without him and his "pep" speeches.

Toward solution of the problem of selecting valedictorian and salutatorian.—In an article in the *Wisconsin Journal of Education*, P. H. Falk, superintendent at Lake Mills, Wisconsin, discusses the diffi-

culties of selecting the valedictorian and the salutatorian of the graduating class, reports on what was done in the local high school toward solving the problem, and summarizes the reasons for the changes made. He opens his article with the following paragraphs.

Among the legacies to the modern public high school is the annual selection of the *two* shining lights of the graduating class, namely, the valedictorian and salutatorian. Because it has been done for so many years and therefore has become traditional, many schools continue the custom. However, along with other outworn practices of another day which still persist in our public schools, its validity in terms of present-day conditions and objectives is being questioned more and more by secondary-school people. . . .

Without going into a thorough study of the history of these two honorary positions, their alleged objectives, at least in recent times, have been: (1) to reward the recipient for achievement in scholarship; (2) to stimulate other students to scholastic attainment; (3) to serve as a method of selecting commencement student "speakers."

After describing the usual procedures of selection, Superintendent Falk summarizes the difficulties inherent in them, supporting the statement of difficulties and injustices from evidence concerning one graduating class, and then outlines the decisions made for the high school at Lake Mills. In explanation of the term "honor point," it may be said that the pupil is given three honor points for each mark of A during a semester in a subject, two for B, one for C, and none for D. The following decisions were made:

1. To eliminate the traditional valedictorian and salutatorian.
2. To separate recognition for scholarship from speakership. Speakers to be chosen by a commencement committee composed of faculty and students solely on the basis of willingness and ability to prepare and present a suitable paper for the occasion.
3. To set a standard of a total of eighty-four [now seventy-seven] honor points for seven semesters in order to attain "High Honors." This was arbitrarily arrived at in the following manner: If a pupil made straight A on a normal load (four subjects per semester) for seven semesters exclusive of gym, he would have accumulated eighty-four honor points. It was agreed that, if he carried more than the normal load, he should have the benefit of those extra honor points. Consequently, all marks for credit toward graduation except for gym are counted.
4. To set a standard of a total of fifty-six honor points for seven semesters in order to attain "Honors." This was arrived at in exactly the same manner as the standard for "High Honors" except that fifty-six honor points is the equivalent of an average of B on a normal load for seven semesters.

5. To engrave annually on a permanent plaque in the hall of the school building the names of all students who attain "High Honors."

Following are the advantages of the plan as seen by the local authorities.

1. Distinction in scholarship is attained by reaching a standard—not by beating somebody. There is undoubtedly still much striving for marks rather than for learning; however, when the personal element of beating a specific somebody is eliminated, we believe much of the viciousness, envy, and jealousy in the struggle for marks goes along with it.

2. The standard is reasonably comparable from year to year.

3. The class is assured its best speaking talent and does not have to endure what may be a very poor speaker to "reward" him for highest marks.

4. There is no misunderstanding and honoring of pupils for something not deserved.

5. An incentive is furnished brilliant students to carry more than the normal load—both academic and semi-curricular.

6. It eliminates the difficulty and unfairness of trying to select one or two for all the honor when four or five are equally deserving.

7. Experience with four successive graduation classes indicates that in practice it has proved to be a satisfactory solution to an annual problem that, for us, was loaded with dynamite.

WHO'S WHO IN THIS ISSUE

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A REMEDIAL-READING PROGRAM IN A PUBLIC HIGH SCHOOL

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During the school years 1934-35 and 1935-36 a remedial-reading program was carried on in the Shorewood Junior-Senior High School. The following report is based on the experimental work undertaken during that time. No control group was used as a check against the experimental group, but all evidence offered on the success of the work has been as carefully validated as possible. No effort has been made to prognosticate success or failure for the program over a long period of time.

THE PURPOSE OF A REMEDIAL-READING PROGRAM IN HIGH SCHOOL

There is no doubt in the minds of the writers that remedial reading is a necessary supplement to the high-school curriculum, at least for the present. Since much attention is now being directed to reading in the primary grades and to study skills during the intermediate years, it is to be hoped that in years to come remedial reading may again be dropped from the secondary-school schedule.

The questions that arise in planning a remedial-reading program in high school are: What type of activities should the program include? Shall it be a program designed to increase the pupils' power in reading, power to read rapidly and to comprehend readily? Or shall it be a program designed to improve the study skills which will be utilized in the classroom? If the first consideration is to be the purpose of the reading class, then the activities included would be training in rapid word recognition; training in comprehension of word groups, sentences, and paragraphs; and training in rapid reading. If the second consideration is to be the purpose of the reading class, to these activities will be added training in organizing materials, such as locating material, taking notes, outlining, generaliz-

ing; training in summarizing materials; and training in evaluating materials.

Because of the fact that study skills are specific both in kind and in use to the subject in which they function, the aim of the special reading class in Shorewood was to improve the comprehension and the reading rate of those pupils who were deficient. Hence, the materials organized for this class included exercises providing training in comprehending the details and the essential ideas of a paragraph and exercises to increase the pupil's rate of recognition and rate of comprehension of the content of the various subjects. The materials included much informative reading from newspapers, periodicals, social-studies references, and science books, as well as stories and books of a literary nature, such as are used in the extensive-reading program of the English classroom.

THE ORGANIZATION OF A REMEDIAL-READING CLASS IN HIGH SCHOOL

Selecting the pupils.—A reading test which checks both power and speed was given to every pupil in the high school at the beginning of the year and to all new pupils entering during the year. Pupils in the junior high school who on this sieve test scored a year or more below the standards of their grades and those in the senior high school scoring below the ninth-grade standard were listed as possibilities and were given a diagnostic test. If these pupils scored a year or more below grade on any two of the tests included in the diagnostic group, they were enrolled in the special reading class. As a check on the results indicated on the standardized tests, report-card marks were compiled in social studies, science, and English. If the marks did not agree with the test results, a conference was called between the psychologist and the subject teachers, who were evidently using some other basis than reading to formulate the passing grade of C or better in their subject. Such conferences were very revealing and helped the special reading teacher in her handling of a case. These conferences determined whether the doubtful pupils would be required to take the special work in reading.

Organizing the class.—After the list was completed, the pupils were grouped into classes according to the hours which were avail-

able. As many as could be accommodated in the class were enrolled for the remedial reading during the hour ordinarily scheduled for extra-curriculum activities. Since the number enrolled in both the junior and the senior high school groups was greater than the optimum number which could be handled in such an individualized class as this must be, some pupils were required to report during their usual gymnasium period. In some cases there was a question whether the pupil would profit more from the reading drill or from the emotional satisfaction of participating in extra-curriculum activities and gymnastics. If the psychologist advised that a pupil continue the extra-curriculum activity, the responsibility for providing reading drill was placed on the classroom teacher, who was notified of the pupil's special deficiencies revealed in the diagnostic test and was asked at each marking period to make a report on his progress. Thus, assignments to the remedial-reading class were planned on an individual basis with an attempt to interfere as little as possible with the pupil's regular program.

A waiting list of pupils who were not such poor readers as the first selected group or who were recommended by the classroom teachers was made available for the reading teacher to use in replacing members of the class ready to be dismissed. The pupils on this list were retested, and new conferences were held between the classroom teacher, the psychologist, and the reading teacher when the pupils were admitted to the reading class.

The smaller the class, the more ideal for handling remedial-reading cases. However, high-school pupils are quite capable of carrying through an exercise if they are rightly started at their work. A class of five or six proved to be very satisfactory. A class of nine or more was found to mean that time was wasted for several pupils while the teacher was timing one pupil's reading, changing the activity for another, or working with a vocabulary exercise for still another. Hence, time will be more economically used and probably more pupils will be helped if few are enrolled during the hour and if pupils are dismissed as soon as power in reading seems an assured achievement.

When a pupil was dismissed from the class, another form of the diagnostic test was given and checked by a second test of some other

type. The scores were placed on a sheet showing the length of the pupil's stay in the remedial-reading class, the skills on which he had been especially drilled, and his test scores at the time of entering and leaving the class. The subject teachers were asked to take special note of the pupil's work in the skills in which he had received practice and to report to the remedial-reading teacher if he should again drop below the average of the class. This sheet was sent to the pupil's home-room teacher and also to the classroom teachers and the deans. If at any time the pupil showed evidence in his class that he was not upholding the scores obtained on the test, he was referred back to the reading teacher, who checked with other tests, investigated his work in other subjects, and decided whether the pupil needed to return for further remedial training. Since effort is, without doubt, an important element in producing, pupils often produce when held to the strict accounting of the reading class but fall down immediately in regular classroom situations. If, after a second trial in the reading class and in consideration of the evidence gained from comparing his reading age with his mental age, it still appeared that the pupil should produce, another dismissal sheet warned the subject teachers that they were responsible for seeing that the pupil produced in his classes in accordance with his reading age and his mental age.

DEFICIENCIES DISCOVERED

Perhaps the most difficult part of arranging remedial work is to determine the specific deficiencies which are interfering with a pupil's reading progress. If psychologists were trained in the field of reading so that they could diagnose reading difficulties as one element in their analysis of a pupil, such diagnosis would make the best possible basis for remedial work. Since many psychologists have not had contact with the reading field, it is necessary to depend on the classifications made by experts in the testing field and on apparent specific difficulties reported by the subject teachers. The following classifications were used.

1. Deficiencies shown by standard reading tests
 - a) Paragraph meaning
 - b) Word meaning
 - c) Selection of central idea of paragraph

- d) Sentence meaning
 - e) Rate of reading
- 2. Deficiencies in study procedures discovered in classroom
- 3. Deficiencies (symptoms) discovered by the remedial-reading teacher after treatment began
 - a) Jerky oral reading
 - b) Inability to perceive syllables in words: for example, dividing the word "humor" as "hum-or" or "China" as "Chin-a"
 - c) Lack of discernment of likenesses and differences between words, such as "commerce" and "commence," "commendation" and "condemnation"
 - d) Inability to make use of stem or root words, as in "idle" and "idly," "circumference" and "circumnavigate"
 - e) Inability to apply known meanings in analysis of new words, as in "ever-lasting"
 - f) Inability to see relations of words in groups
 - g) Meager vocabulary
- 4. Special deficiencies due to low mentality, emotional instability, physiological defects (instruction of cases in this classification was not undertaken by the remedial-reading teacher; they were referred to the school psychologist and the county psychological clinic)

TREATMENT

One of the first steps in the treatment of remedial cases is to establish correct attitudes on the part of the pupils, that is, a spirit of co-operation toward remedial teaching and a willingness to exert effort in the drill given on reading skills. A general presentation was usually made to the group, describing the purpose of the class and the ways in which it would help the pupils in content subjects and in general reading. Individual difficulties were discussed in frequent interviews, and it was pointed out how these difficulties impede classroom work and how they may be overcome. Analyses of daily work and tests at frequent intervals, with comparison of results, indicated to the pupils how they were progressing. Classroom teachers assisted the remedial-reading teacher by referring cases and by explaining to these pupils how the special training in reading would benefit their work in the content subjects. The class work itself consisted in drill on several types of material.

In one type lessons from various kinds of readers, books of science, or social science were prepared, consisting of short selections taken usually from books a grade or two below the pupil's actual grade

placement. These lessons were mounted in folders, with directions for the reading and for completing some type of check on the reading, such as answering detailed questions about each paragraph, making a side-head for each paragraph, matching topic headings with paragraphs, timing the reading and then answering questions purely by recall, or showing understanding of sentences by following directions accurately.

A second type of material used exercises from standard workbooks (such as the McCall-Cook-Norvell workbooks and the Brueckner and Lewis Exercises in Reading). These were selected at the grade level shown by the tests to have been attained by the pupil. These exercises emphasized answering of detailed questions, finding the central idea of a paragraph, answering questions by recall, and following directions.

A third type of material was given for the purpose of increasing vocabulary: teaching new words, using them in sentences, matching words of like meaning, matching opposites, and fitting dictionary meanings into the context. In vocabulary work a great deal of individual attention was given to dividing words into syllables; learning to place accents; and pronouncing new words when syllabication, accent, and markings are given in the dictionary. Drill was given on the common prefixes and suffixes. An effort was made to train the pupils to recognize root words and try to figure out the meanings of words to which prefixes and suffixes have been added. A helpful device to encourage continuation of vocabulary work outside the classroom is the cross-word puzzle. Pupils are interested in them and get a great deal of fun from working out puzzles given in newspapers and magazines. These pupils often brought puzzles into class and worked on them in groups or in pairs.

Another type of material was used for training pupils to read more rapidly. Since learning to read rapidly is partly a matter of increasing eye span, the first step in the remedial teaching was to test the length of the eye span by phrase grouping, then to call attention to the length of the eye span, and finally to lengthen the eye span by exercises found in standard workbooks. Training for rapid reading was also carried on by forcing concentration by the use of many short, timed exercises with questions for recall. The

pupils worked out their own speed scores, the number of words read a minute, and compared records from day to day to discover their progress. The pupils were urged to time their reading at home to see whether they showed further improvement.

In addition to this drill the pupils were encouraged to do wide reading outside the classroom. The teachers of English co-operated by suggesting titles of easy books suitable for the grade placement and reading attainments of particular pupils.

In all the work the first lessons used easy material in order that a feeling of confidence and success might be established. The difficulty of the material was increased gradually, and a critical analysis was made of the results of each exercise. Such analysis must not, however, be so critical that it fails to leave room for every encouragement possible and for as much praise as can conscientiously be given. A feeling on the part of the pupil that he is gaining is most essential to the success of the program.

RESULTS

The data in Table I on the percentage of pupils showing improvement are evidence that drill on specific skills causes improvement in about 90 per cent of the cases—a result that is certainly worth while. The average amounts of improvement show that results vary greatly, but they do not indicate the great variations in individual improvement. The uneven results for Grades XI and XII are probably due to the small number of cases. The smaller numbers in the upper grades are caused either by the fact that deficient pupils are eliminated by training in the lower grades or by the fact that they have reached the limit of their capacity and are not taken into the remedial-reading classes.

In an effort to determine whether the improvement noted in the remedial-reading class was permanent, a recheck was given to every pupil dismissed from the class during the year 1935-36 by the administration of a standardized test of the same type as was given at the time of dismissal. This recheck was given in May, 1936, the intervals since dismissal ranging from one month to eight months. Table II shows that, of the total number of retests on skills, only 15 per cent showed regressions. Of thirty-eight regressions, eighteen

TABLE I
NUMBER OF PUPILS IN 1934-36 GIVEN REMEDIAL INSTRUCTION IN READING
SKILLS, PERCENTAGE OF PUPILS SHOWING IMPROVEMENT, AND
AVERAGE IMPROVEMENT IN READING AGE

Skill	Number of Pupils Given Instruction	Percentage of Pupils Showing Improvement	Average Improvement (in Years and Months)
Reading for details:			
Grade VII.....	20	95.0	3-0
Grade VIII.....	19	89.5	2-8
Grade IX.....	9	100.0	3-3
Grade X.....	14	85.7	2-4
Grade XI.....	6	83.3	2-0
Grade XII.....	3	66.7	1-3
Total.....	71	90.1
Vocabulary:			
Grade VII.....	14	92.9	2-7
Grade VIII.....	23	100.0	2-3
Grade IX.....	16	100.0	2-0
Grade X.....	14	92.9	2-1
Grade XI.....	7	85.7	1-7
Grade XII.....	4	100.0	2-5
Total.....	78	96.2
Getting central idea of paragraph:			
Grade VII.....	11	81.8	3-8
Grade VIII.....	15	93.3	3-9
Grade IX.....	10	100.0	3-4
Grade X.....	9	88.9	1-9
Grade XI.....	2	100.0	1-6
Grade XII.....	2	100.0	2-4
Total.....	49	91.8
Sentence meaning:			
Grade VII.....	11	90.9	4-0
Grade VIII.....	9	100.0	2-2
Grade IX.....	11	90.9	2-3
Grade X.....	4	75.0	3-0
Grade XI.....	9	88.9	2-0
Grade XII.....	1	100.0	4-5
Total.....	45	91.1
Rate of reading:			
Grade VII.....	13	92.3	4-0
Grade VIII.....	11	63.6	3-1
Grade IX.....	11	90.9	5-3
Grade X.....	14	100.0	3-9
Grade XI.....	4	100.0	3-9
Grade XII.....	4	75.0	1-6
Total.....	57	87.7

were regressions in skills on which the pupils had been given practice. In spite of regressions, thirteen of the eighteen upon which practice had been given still showed a total improvement ranging from 0.2 of a grade to 2.7 grades.

Since the special drill in reading is carried on by a special teacher and not directly by the subject teachers in the various grades, the

TABLE II
RESULTS OF RETESTS GIVEN IN MAY, 1936, TO PUPILS
WHO HAD BEEN DISMISSED FROM REMEDIAL-
READING CLASSES

	Grade VII	Grade VIII	Grade IX	Grade X	Grade XI	Total
Number of tests given on reading skills...	35	85	45	50	30	245
Number of skill tests indicating regression whether or not up to grade level at dismissal.....	3	11	10	10	4	38
Number of skill tests indicating regression though at grade level at dismissal.....	3	10	8	10	4	35
Number of skill tests indicating regression on skills practiced:						
Number of practiced skills showing regression.....	2	8	1	5	2	18
Number of skills showing no loss over initial score.....	2	6	1	3	1	13
Number of skills showing loss over initial score.....	0	2	0	2	1	5
Number of skill tests showing regression on skills not practiced.....	1	2	7	5	2	17

question arises what effect this practice has on the classroom work involving reading. The following are typical comments made by teachers after receiving the dismissal blanks.

Has shown a marked improvement upon skills checked.

Gave test on paragraph meaning on March 24 using several paragraphs on British-African possessions from Rugg book. He is having no difficulty with reading.

Shows much improvement in comprehension in biology.

Much better outside reading for English during second semester than during first.

I think Bill is a little unwilling to co-operate. In order to hide his lack of ability, he sets up an "I don't care" defense.

Pupils who are in the remedial-reading class have shown an improvement of one point [on a five-point scale] in report-card marks in seventh-grade English.

WEAKNESSES OF THE PROGRAM

Certain weak points have been discovered in this experiment.

1. It is difficult to check whether the skills taught in the remedial classes are applied when occasion arises for using them in content subjects. The follow-up work to be done by the remedial-reading teacher should be definitely organized. For this purpose the remedial-reading teacher should carefully check the marks received on report cards to see whether the marks of each remedial pupil in content subjects are improving from one marking period to another in accordance with his reading improvement and to compare his marks in content subjects before the remedial teaching with his marks after he has been dismissed from the class. A report should be devised which could be filled out quickly and specifically by the subject teacher. This report should be returned to the remedial-reading teacher at each marking period. This blank should ask for information on the following questions.

1. Is he reading as fast as I have a right to expect?
2. Does he read written directions understandingly so that he can carry them out?
3. Is he able to acquire the vocabulary of the subject?
4. Is he able to get the exact information for which I ask?
5. Other comments.

Columns could be provided for indicating whether the pupil is "above average," "just average," or "among the poorest" in these respects.

The remedial-reading teacher should work on a full-time basis in order that she may have opportunity to do the checking and follow-up work on the cases dismissed.

2. Increased concentration is such a factor in the practice exercises that it is difficult to determine whether the improvement really results from increased power or whether it results from greater application under pressure. There seems to be no way of checking this point objectively. That the question is important, however, is evident from the fluctuation of scores on the same tests given at intervals. That there is a problem is evident from low subject marks made by pupils who are able to produce scores above their grade placement on standard tests. The only constructive suggestion

which can be offered is that classroom teachers keep in mind the ability of the pupils to produce, as evidenced by scores on the dismissal sheet, and bring pressure to induce them to work up to the level of their ability.

3. The arrangement of classes has not been sufficiently flexible. It does not allow class size to be suited to the needs of the individual pupil. Cases deficient in word recognition and length of eye span are best handled in short periods of individual teaching. Cases involving comprehension may well be handled in groups of two to six pupils. Then, too, it does not allow pupils to attend the class at the period of day which will be most convenient for them. Sometimes a bad attitude must be overcome because a child has been deprived of the gymnasium period or an extra-curriculum activity.

STRENGTH OF THE PROGRAM

The following strong points have been revealed by the program.

1. The large amount of individual work gives opportunity (a) to make a thorough diagnosis of causes of the failure to read, (b) to adapt the work to the needs and peculiarities of individual pupils, and (c) to develop an attitude of confidence through the use of materials and methods at the level at which each child can succeed.

2. The provision for special instruction in reading, in addition to the work in the subject classes, (a) allows time for the frequent repetitions necessary for the slow learner; (b) allows time for giving attention to individual deficiencies, which is impossible in the classroom situation; and (c) allows for the economical handling of serious cases by effective analysis of an individual pupil's needs, the use of techniques adapted to specific deficiencies, and the collection of materials suited to specific difficulties.

3. The opportunity for strict supervision in a small group (a) forces the pupil to apply himself to the task in hand; (b) builds efficient work habits, such as attacking a task without waste of time, completing a task according to directions regardless of the amount of time needed, and working with maximum effort during an entire period; and (c) provides for detailed checking with each pupil of all work accomplished and an analysis of his errors.

IMITATION AND DISCRIMINATION IN ADMINISTERING THE SMALL SECONDARY SCHOOL

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ADMINISTRATION BY IMITATION

In the periodic examinations which the small secondary school and its problems receive, there are certain considerations arising from, or intimately related to, the difficulties created for the small school by the size of its enrolment and staff which customarily receive slight attention. More general recognition of these considerations, to be elaborated presently, can by no means make the existence of the small school completely happy, but due allowance for these factors can do much to bring order out of the confusion that so often characterizes the administration of the small school.¹

The idea that the small secondary school is nothing more than a large school in miniature and that the conduct of the small school should be in keeping with this concept appears to be generally accepted by both practicing administrators and educational theorists. Within recent years rural education as a separate category in the total field of educational thought and research has all but disappeared, forced into eclipse by the principle that educational ideas are unitary and that, therefore, qualitative distinctions between country and city, large and small, are not only unnecessary but positively undesirable. Quite naturally, this gradual disfavor into which qualitative differences between large and small schools have come, has resulted in the placing of primary emphasis on purely quantitative distinctions. It is not the purpose of this article to

¹ A small high school is here considered to be a school enrolling an average of fifty or fewer pupils to a grade. For evidence supporting this definition see: (a) Warren C. Seyfert, "The Effects of School Size." Unpublished Doctor's dissertation, Harvard Graduate School of Education, 1936. (b) Francis T. Spaulding, *The Small Junior High School*. Harvard Studies in Education, Vol. IX. Cambridge, Massachusetts: Harvard University Press, 1927.

exhume the body: perhaps it would be, rather, an effort to rescue from senility. Nevertheless, it seems imperative that the attention of both practitioners and theorists be called to the dangers which tend to accompany a purely quantitative approach to the problems of the small secondary school. It may not be wise to overemphasize differences other than quantitative differences which exist between large schools and small, but to neglect them completely does no good service to the small school.

The stress that is being placed currently on the essential similarities of large and small schools has resulted, for one thing, in the development of a policy of administration by imitation on the part of the school men responsible for the conduct of the smaller schools. It has led to the general acceptance of the notion that anything which is suitable for a large school is equally suitable for the small school, that the only problem involved is one of taking proposals or plans for large-school activities and cutting them to measure to fit the facilities of the small school.

It would be an extremely happy condition if the small school could be administered on this needle-thread-and-scissors plan, but such is not the case. The popularity of this plan as an administrative policy can be traced to the lack of critical insight on the part of administrators and theorists. In large part, it is a natural result of the failure to recognize that activities which are feasible and desirable in the large school are not necessarily desirable in the small school and that the attempt to employ some of these activities in the small school may actually be detrimental to the school. To take but a single illustration of this situation, consider classroom supervision by the principal. In practically all expositions of the theory and practice of supervision, extended observation of teaching by the principal is assigned an important part. As a consequence, the head of the small high school endeavors to salvage, from his busy day, time for this undertaking. Only under the most unusual circumstances does he manage to obtain time enough, assuming his competence, to do a job of classroom supervision which is of any genuine importance, and the fact that such time as is available for supervision is devoted to visitation probably means neglect of other supervisory procedures which are likely to be more productive under the

conditions prevailing in the small school. The final value of this attempt to imitate practice in large schools will probably be nil, or worse, since time, which is extremely precious in the life of the small-school principal, has been used to no good end. Further examples could be produced to illustrate the unfortunate consequences which may attend the attempt of the small secondary school to use without discrimination procedures recommended for larger schools. It is not the intent of this argument to show that nothing done by large schools is suitable for small schools or that cutting to measure always produces unsatisfactory consequences. Nevertheless, the head of a small school ought constantly to be aware of the dangers which may attend his efforts to employ uncritically administrative methods generally recommended. Administration by imitation may lead the small school to undertake practices which are not seriously needed by the school or which, when cut to the proportions of the small school, render the school but slight service in proportion to the time consumed.

The consequences of imitation must not only be considered from the point of view of an uneconomical and wasteful expenditure of effort; they must also be considered in the light of the superficiality that imitation may produce. In many regions the popular notion prevails that, unless a school maintains a full program in the languages and other traditional fields, it has no right to the title of high school. There is a professional counterpart to this popular idea, although the presence of the professional idea is felt less directly than is that of the popular belief. There is a feeling abroad among school men that, unless a school—no matter what its size—has represented in its organization a majority of the ideas brought forward by leaders in the field of school administration, it is to be condemned as unprogressive, if not reactionary. Of course, in many instances there is no open expression of this feeling, but the existence of the feeling is sufficient to produce a touch of professional conscience on the part of the principal whose school is open to criticism of this sort. In the end the principal is likely to make some attempt to keep his school on a level with the latest, if not necessarily the best, in educational thought and practice.

It is far from the intent of this argument to hold that the small

school ought to do anything less than it can to offer its pupils a sound and defensible education. In view of limitations of staff and equipment, however, the attempt on the part of the small secondary school to include in its program every practice which is recommended for, and feasible in, the large school can result in little more than a form of lip service, a kind of professional hypocrisy. No doubt comprehensiveness of organization is as much to be desired for the small school as for the large school, but a comprehensiveness which is secured in the small school at the cost of a reduction in the quality of the work done by the school is an end too dearly purchased. Additions to the organization of the small school which are made by its administrators primarily as concessions to professional pressure may be real threats to the quality of all the school's work.

In the writer's opinion, then, imitation can never be a wholly satisfactory policy for the conduct of the small secondary school. If the small school is satisfied to take its cues from the large school, it must content itself with remaining as it is today—both literally and figuratively the country cousin, the poor relation of American secondary education. If the small school is to become an educational institution which will really meet the needs of the clientèle served, it must be studied as a comparatively distinct part of the American educational system.

DISCRIMINATION IN ADMINISTRATION

There is not space in this article to outline completely the ideas which should dominate this treatment of the small school. However, certain basic concepts, together with their implications, should be elaborated.

In the past there has been much confusion concerning the actual limitations under which the small school works by virtue of the size of its student body and teaching staff. The general idea has been that there are certain procedures and activities which the small school cannot undertake because of its size and that in the case of all other practices the school is free to proceed as it wishes. Actually, however, the problems of the small school are not so simple as this assumption would indicate. To be sure, there are a number of procedures which are forbidden the small school if it is to observe

customary economies in administration. The school enrolling thirty pupils to a grade finds it practically impossible to set up parallel sections in its courses and can hardly be expected to employ even a part-time specialist in the field of guidance, and so on. On the other hand, many things are as available to the small school as to the large. For example, size *per se* need have no bearing on the methods of instruction in the classroom, the length of the school day, or the use of newer types of examinations.

There is a form of restriction confronting the small school which ordinarily receives too little recognition: the limitation with respect to the number of things of a given kind which the school may undertake. To make this point clear, consider the program of studies. All other things being equal, the size of a school has no relation to the specific courses which go to make up this program, but size does have very definite bearing on the number of courses which may be included in the program. The situation is similar with respect to the extra-curriculum, basic guidance activities, and other portions of the school's organization. Failure to recognize the responsibility that this kind of restriction places on the shoulders of the principal of the small high school accounts in large measure for many of the inconsistencies to be found in the administration of small schools. Preparing the organization of the small school must be looked on less as the mere filling of a quota and more as a process of selecting in a wise and discriminating manner those features which are to make up the school's total offering. Quite naturally, careful selection is also to be desired in the large school, but, because of the multiplicity of the resources and the variety of undertakings in the large school, poor choice may result in comparatively little harm. The situation in the small school is entirely different. Because the small school cannot do everything it wishes, whatever it does attempt must be undertaken with a definite end in view and must be chosen because there is reason to believe that the practices selected are the most appropriate activities available in view of the ends being sought. For obvious reasons, wasted efforts and unnecessary duplications cannot be tolerated in the administration of the small school.

The selection of the activities which are to be employed and those

which are to be rejected is by no means a simple matter for the persons responsible for the conduct of a small school. To follow hard and fast rules in making selections may lead to as unfortunate results as may pure imitation. It is as likely to be unwise for one small school to copy the practices of another small school as for it to follow the lead of a large school. There are, however, a number of precepts which the head of the small high school would do well to observe in making the necessary choices and selections. Among these precepts should be included the following.

1. *The first step to be taken in improving the organization and the administration of a given small secondary school is the careful determination for that school of its aims and purposes, the careful formulation of educational and administrative policies.* At first glance this statement may appear to be extremely trite, an unnecessary repetition of an admonition with which educational literature is already replete. However, there is more to be read from this statement than meets the eye of the casual observer. As has been noted in preceding paragraphs, the small school must be conducted in the midst of very restricting circumstances—restrictions which are likely to affect not only the means to be employed but also the ends to be sought. A judgment or selection which is not to be merely pure chance can be made only against the background of purposes or objectives. The principal of the small high school can hardly be expected to make wisely those decisions that he must make unless he has available a careful delineation of the goals toward which he and his school are working.

2. *The second step should be to determine, by inspection and experimentation, those practices and devices which are not available because of the size of the school or which are unnecessary in view of the ends that the school is seeking.* In educational literature there are available descriptive and experimental studies of the effects of enrolment on the small school. Since, however, these studies for the most part portray conditions as they hold on the average and since circumstances vary from school to school, it is of utmost importance that each small school be informed concerning its own particular handicaps. Excessive attention to restrictions of this sort may breed undesirable pessimism, and perhaps the study of local limitations may foster a

negative rather than a positive attack on the problems of the small school. Nevertheless, the principal of the small school ought to approach his work in a distinctly realistic frame of mind. Unfounded optimism and wishful thinking are no more to be desired than is discouraging pessimism.

3. *The third step in an administrative policy looking toward the improvement of a small secondary school should be to ascertain, by observation and experimentation, those phases of the school's work in which the size of the school operates to limit the number of different specific practices that can be used and, furthermore, the number of things of a given type that the school is able to sponsor.* These last two steps, when taken together, should constitute for the small school an accounting of its resources. These two steps have stressed the locating and the evaluating of the handicaps of the small school. Handicaps perhaps can hardly be classified as resources, but inevitably, when restrictions are being located, account must be taken of practices which suffer no restrictions. Without a complete tabulation and study of both the positive and the negative aspects of a school's resources, it is impossible to prepare for any school, and for a small school in particular, a constructive administrative policy.

4. *The fourth step is to select those specific procedures of a given kind which are to make up the total number of things of the kind that the school can support.* To many persons it may appear that making these selections is merely a matter of routine. Such, however, should not be the case. Mere routine selection will do much to nullify the values to be realized from an intelligent observation of the first three steps which have been presented in this program. As has already been said, it is undesirable, if not impossible, to lay down a series of rules or regulations to be followed without variation when decisions are made for the small school. There are, however, certain criteria which the principal can employ to guide his choice, some of which are presented in the following paragraphs. It will be noticed that these criteria are stated in terms of "preferences." In the large school with ample facilities such decisions as have to be made are customarily of the "to do or not to do" variety, but, as has been repeatedly emphasized in this article, choices in the small school consist primarily in selecting one or a small number of activities of

a given class from a group of activities of this kind. Hence, the form of expression used.

a) *Preference should be given to an activity which will contribute definitely to the objectives of the school rather than to an activity the contribution of which is less certain, even though the latter activity is favored by common usage or tradition.* The applications of this criterion are so evident as to call for no illustration. The importance of this consideration should be equally clear. The small school is too often disposed to "play safe," to rely on measures which appear suitable because of a specious form of validity cast over them by antiquity. Unreasoning adherence to outworn forms and procedures is a costly policy in any school, but especially so in the case of the small school, since the employment of such forms is likely to preclude the possibility of using more satisfactory activities.

b) *Preference should be given to an activity which meets the needs of a large number of pupils rather than to an activity which is an educational outlet for only a limited number.* This statement is not to be taken as an argument supporting the neglect of the needs of minority groups in schools of any size. In the conduct of the small school, especially, there is always danger of thinking and acting primarily in terms of the needs of a comparatively small and already well-favored group. Many times, of course, the application of this criterion must be tempered by existing conditions, but, on the whole, the principal of the small school would do well to give thought to the size of the group of pupils for which any addition, modification, or substitution in the offering of his school is genuinely appropriate.

c) *Preference should be given to an activity which provides a fundamental addition to the scope of the school's work rather than to an activity which duplicates in any substantial degree the work being done or the ends being sought by activities already in operation.* For emphasis and effect it is often necessary to pursue the same ends in a variety of ways. In school administration, however, duplication of effort is more often unconsciously brought about than deliberately determined. When duplication is thus unintentional, it is likely to mean a substantial waste of time and effort, and the small school can ill afford such waste. In the school with few teachers every activity must count, every moment should be used to a comparatively

unique purpose. If two activity periods a week suffice to gain desired ends, there is no need to use more. If a French club is doing a satisfactory piece of work, it should not be duplicated by formal courses in French, and vice versa. True, additional time given either to activities or to French may improve somewhat the results obtained, but it is always open to question whether the improvement will be commensurate with the time used. Time is at a premium in the small school, and time used unnecessarily for certain purposes means lack of time for others, perhaps more worthy.

d) Preference should be given to an activity or a method which can be operated successfully by the average teacher rather than to one which demands for its use the services of an expert or specialist. Because of current practice in large schools, the small school is often disposed to attempt practices the successful conduct of which really needs the presence of an especially trained person. For example, instead of being content with organizing a guidance program which may be handled by its staff of classroom and home-room teachers, a small school often embarks on a plan which demands the help of a full-time or part-time counselor if it is to produce acceptable results. Even though the latter plan may be the more effective, realities may as well be recognized. Only rarely is the small school able to have on its staff specialists of any kind. The small school will do well so to organize its activities as to make the most of the regular teachers rather than, by being over-ambitious, to achieve nothing.

e) Preference should be given to an activity or a method which is economical of time and equipment rather than to one which, though possibly somewhat more effective, demands substantially more time and equipment for its operation. Comment on this criterion is scarcely necessary. It stresses from still another point of view the necessity for economy of effort in the management of the small school. The criterion is not meant to condone half-measures or partial success but to emphasize how imperative it is that the small school be especially acute in detecting points of diminishing returns.

f) Preference should be given, all other things being equal, to an elective course which is organized as an independent course rather than to one which is part of an inviolable sequence of courses.

g) Preference should be given in the early years of the secondary school to a course or an activity which will be of value to a pupil whether

or not he completes the secondary school rather than to one which is dependent for its value on the pupil's completing the secondary school or going on to a higher institution.

h) Preference should be given in the upper years of the secondary school to a course or an activity which provides an opportunity for a substantial group of pupils to go farther in a field already entered rather than to one which, for the same group, would be merely an opportunity to enter a new field at an elementary level.

The last three criteria may be considered together, since they point to a common end, the making of selections which will preserve in the work of the small school as great a degree of flexibility as possible. These three criteria are by no means novel, and they apply not only to small schools but to large schools as well. In spite of this situation, however, they deserve reiteration. For, although a certain amount of rigidity may, at best, characterize the program of the small high school, there is often more inflexibility than is necessary simply because those responsible for the administration of the school have given scant attention to the considerations to which these criteria refer.

CONCLUSION

It is not contended that, by the simple observance of the ideas which this article has presented, the small school will be able to overcome all its difficulties. Indeed, there may well be disagreement concerning the validity or the applicability of certain of the arguments and principles which have been set forth. Nevertheless, the contention seems inescapable that the improvement of the small secondary school cannot come through the employment in routine fashion of certain mechanical procedures. The problems of the small school are qualitative as well as quantitative. The quality of a school can seldom rise above that of its administration, particularly in the case of the small school. Unintelligent and unimaginative administration of a small school can result in nothing more than an undistinguished product. Probably in a literal sense the small high school will always remain a "country cousin" in the family of American schools, but discriminating and far-seeing administration can do much to make inept the figurative application of this belittling phrase.

THE NEED FOR PUBLIC JUNIOR COLLEGES IN NEW YORK STATE

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Any consideration of the possible effect of public junior colleges on higher education in New York State should take into account the present opportunities for higher education in the state, the type of work offered, its cost, limitations, etc. In this article this information will be summarized from data collected by a questionnaire sent by the writers to the registrars of all colleges in the state in 1934. An analysis will also be made of a questionnaire study of the intentions of Seniors in 22 high schools in the state with respect to education beyond high school. This questionnaire was answered by 4,282 Seniors, 2,039 of whom were pupils in high schools located in cities with populations of 20,000 or more but without a college, either public or private, and 2,243 in high schools located in cities having a college, either public or private, and with populations of at least 20,000.

It will be interesting to note the percentages of Seniors who hoped to go to college, where they wanted to go, why they wanted to go, and what they planned to study in college. The Seniors who did not expect to go to college were also studied to find out why they were not going and what they were planning to do after high-school graduation. An attempt was made to discover whether the pupils in these two groups, plus the pupils who were uncertain about going to college, would consider attending a local public junior college. Their reasons for or against attending such an institution and the type of courses that they would like to take give an indication of the need for public junior colleges.

PRESENT OPPORTUNITIES FOR HIGHER EDUCATION IN NEW YORK STATE

New York State supports, with public funds, two state teachers' colleges; nine state normal schools; and colleges of agriculture, home

economics, veterinary science, forestry, and ceramics. In 1933-34, 8,359 students were enrolled in these colleges.¹ In the same year about 2,200 students were enrolled in 21 Emergency Collegiate Centers supported by federal relief funds.²

There are 43 private liberal-arts colleges in the state with an enrolment in 1933-34 of 36,371. Their tuition charges range from \$25 to \$1,200, with an average of \$321.90. This figure is 80 per cent higher than the average for 1923.³ Twelve of these colleges place limitations on their enrolments. The distribution of students by classes in these 43 colleges is: Freshmen, 37.4 per cent; Sophomores, 25.3 per cent; Juniors, 19.0 per cent; Seniors, 18.3 per cent.⁴

There are 12 private institutions giving work of junior-college grade. According to the registrars of these institutions their total enrolment in 1933-34 was 926, and their average tuition charge was \$928.43.

The College of the City of New York is a group of three non-state public colleges supported by, and for the benefit of, residents of New York City. Tuition is free, and the total enrolment of their liberal-arts colleges in 1933-34 was 10,881.

There are 88 private professional and technical colleges in New York State. Their total enrolment in 1933-34 was 61,592,⁵ and their annual tuition charges range from nothing to \$522, with an average of \$278.38.

Since there are no state-supported, public, liberal-arts colleges in New York State, the state has adopted a policy of awarding "state scholarships" to the high-ranking pupils in the high schools of each county. There are 750 of these scholarships, which are worth to each recipient \$100 a year for four years while attending any registered college or university in the state, except those teaching law, medicine, dentistry, veterinary science, or theology. These scholar-

¹ Data obtained by questionnaire from the registrars of all colleges in New York State.

² Data supplied by correspondence with the New York State Education Department.

³ Huber William Hurt, *The College Blue Book*, I, 160, 168. Chicago: College Blue Book, 1923.

⁴ *Twenty-ninth Annual Report of the Education Department for the School Year Ending June 30, 1932*, II, 328-63. Albany, New York: University of the State of New York, 1934.

⁵ Data secured from a questionnaire sent to the college registrars.

ships assist the high-ranking pupils, regardless of financial need, to attend liberal-arts colleges in the state. There are many other students who are well qualified for admission to college but who do not rank high enough to win any of these scholarships. Many colleges have scholarship funds to assist able students and others worthy of financial assistance. The fact remains that the cost of attending most of the private colleges in the state is prohibitive for the student from a poor family who is not near enough to the top of his class to win a valuable scholarship. This situation is as much a selective factor as the stated admission policies of the various colleges.

No provision is made in this state for training at the semi-professional¹ level (for such occupations as accountant, draftsman, caterer, mechanic, and medical and dental assistants) except in proprietary institutions, such as the "business colleges." The high student-mortality rate, shown by the distribution of the college students given above, indicates that the majority of students drop out at the semi-professional level; their education is interrupted rather than completed. Would it not be wiser to provide junior colleges offering semi-professional training designed to terminate in two years and to turn the student into the world with the training necessary to take his place in business or industry at that level? Spahr's study² of fifteen thousand men in technical positions led him to the conclusion that two or three men trained at the semi-professional level can be absorbed for every man needed at the professional level, that is, a graduate of a four-year engineering college.

HIGH-SCHOOL POSTGRADUATE PROBLEM

In 1933 Soper and Hollister made a questionnaire study³ of the postgraduate situation in New York State high schools. The 171 high schools studied had 5,354 postgraduate pupils, an increase of 1,174.8 per cent over the number in these schools in 1921. The greater part of this increase had come since 1929. These figures do

¹ The accepted definition of "semi-profession" is one that can be prepared for by two years of training beyond high school.

² R. H. Spahr, "Engineering Education on the Junior College Level," *American Association of Junior Colleges—Tenth Annual Meeting* (1929), pp. 113-14.

³ Wayne W. Soper and Frederick J. Hollister, *The Postgraduate Problem in New York State High Schools*, pp. 8-9. University of the State of New York Bulletin, No. 1029. Albany, New York: University of the State of New York, 1933.

not include all high schools in the state. The authors estimated the total number of postgraduates in the state, exclusive of New York City, as about ten thousand.

For the country as a whole the *Junior College Journal* reports:

Statistics recently compiled by the United States Office of Education show an increase in the postgraduate enrolment in the secondary schools of the country between 1931-32 and 1933-34 of no less than 70 per cent as compared with an increase of less than 7½ per cent in the enrolment of the regular four years of the secondary schools. The junior-college implications of the sharp increase from 30,000 to 51,000 postgraduate students in only two years are obvious.¹

INTENTIONS OF HIGH-SCHOOL SENIORS WITH RESPECT TO FURTHER EDUCATION

In May, 1934, the writers of this article sent questionnaires to high-school Seniors in the following cities with populations of approximately 20,000 or more that do not have colleges: Amsterdam, Binghamton, Kingston, Lockport, Middletown, Newburgh, Rome, Utica,² Watertown, and White Plains. The high schools in these cities enrolled 3,155 Seniors. Replies were received from 2,039 pupils, or 64.6 per cent of the total. There were 1,017 boys and 1,022 girls, and it is assumed that the replies were from a relatively fair sample of all the Seniors.

In order to determine the effect which a local college may have on the educational intentions of high-school Seniors, the writers sent a similar questionnaire to high-school Seniors in the following college cities with populations of approximately 20,000 or more: Albany, Buffalo, New Rochelle, Olean, Oswego, Poughkeepsie, Rochester, Schenectady, Syracuse, and Troy. Replies were received from 1,015 boys and 1,228 girls, or a total of 2,243.

After some preliminary questions about sex, age, etc., the pupils were asked: "Will you go to college next year?" Table I summarizes the replies received to this question. The percentage of affirmative answers from Seniors in college cities is significantly higher than the corresponding percentage from Seniors in non-college cities. Apparently, living in college cities encourages college attendance. The

¹ "Postgraduate Increases," *Junior College Journal*, VI (December, 1935), 121.

² New Hartford and Whitesboro have populations of less than 20,000 and are separate municipalities. Since they join Utica on the southwest and northwest, they were included in the study. They contributed 104 replies that are included in the figures for Utica.

fact that students in college cities can live at home and save expense may be the real reason for the difference in percentages.

Those who answered "yes" to the preceding question were asked to name the college that they expected to attend. Two hundred and thirty-two students of the 347 in non-college cities who answered

TABLE I
REPLIES GIVEN BY HIGH-SCHOOL SENIORS TO QUESTIONNAIRE
REGARDING COLLEGE PLANS FOR ENSUING YEAR

QUESTION AND ANSWER	SENIORS IN NON-COLLEGE CITIES		SENIORS IN COLLEGE CITIES	
	Number	Per Cent	Number	Per Cent
Will you go to college next year?				
Yes.....	347	17.0	587	27.1
No.....	978	48.0	875	40.4
Uncertain.....	714	35.0	702	32.4
Total.....	2,039	100.0	2,164	99.9
Why did you select the institution [that you expect to attend]?				
For vocational training.....	53	18.2	64	7.6
For pre-professional training.....	21	7.2	120	14.3
For cultural training.....	19	6.5	29	3.5
For financial reasons.....	31	10.6	96	11.5
Influenced by family and friends.....	36	12.3	62	7.4
Location of college.....	10	3.4	67	8.0
College near home.....	17	5.8	216	25.8
College away from home.....	10	3.4	12	1.4
Academic standing of college.....	95	32.5	171	20.4
Total.....	292	99.9	837	99.9

"yes" named 58 colleges. The average distance from the students' homes to these colleges is 226 miles. The following are the colleges named five times or more by the Seniors in non-college cities.

Colgate University	Syracuse University
Cornell University	Vassar College
Columbia University, Barnard College	Wellesley College
Hamilton College	State Normal and Training School (New Paltz, New York)
University of Michigan	State Normal School (Oneonta, New York)
New York State College for Teachers (Albany, New York)	State Normal School (Oswego, New York)
New York University	

Syracuse University (named twenty-seven times) was mentioned most frequently. This list indicates that no one college is answering the need of these prospective students.

The following are the colleges named five times or more by the Seniors in the college cities. Four hundred and twenty-nine of the 587 in the "yes" group named 48 colleges. The average distance to these colleges from the students' homes is 183 miles.

Albany Business College	Rensselaer Polytechnic Institute
University of Buffalo	University of Rochester
State Teachers College (Buffalo, New York)	Russell Sage College
Colgate University	Skidmore College
Columbia University	St. Bonaventure College and Seminary
Cornell University	Syracuse University
Duke University	Union University
University of Michigan	Vassar College
College of New Rochelle	Williams College
New York State College for Teachers (Albany, New York)	State Normal and Training School (New Paltz, New York)
New York University	
University of Pennsylvania	

The answers to the question, "Why did you select this institution?" were varied, but it was found that practically all of them could be classified under the headings given in Table I without causing misunderstanding or misinterpretation.

The Seniors in the non-college cities were asked: "Do you plan to complete at least four years at this institution?" Only 258, or 74.4 per cent, of the 347 hoped to stay in college four years, and it would seem that many of these were rather optimistic. The remainder had no expectation of remaining four years. One hundred and twenty-nine, or 37.2 per cent, of the "yes" group in non-college cities expected to borrow money to finance their college careers; and 92, or 26.5 per cent, expected to earn part of their expenses while in college. The amounts that they expected to earn varied from 10 per cent to 100 per cent of their total expenses.

The Seniors in non-college cities who answered "uncertain" or "no" to the question, "Will you go to college next year?" gave the reasons shown in Table II for their statements. It would seem that the reasons "Needed at home," "Must work," and "No college near

home" are so closely related to "Finances" that they might all be grouped together. In that case the cost of college was given by 90.7 per cent of the "uncertain" group as the cause of their uncertainty. For Seniors who were not going to college, finances seemed to be the reason in 65.1 per cent of the cases.

TABLE II
REASONS GIVEN BY HIGH-SCHOOL SENIORS IN
NON-COLLEGE CITIES FOR NOT GOING TO
COLLEGE IN FOLLOWING YEAR

REASON	SENIORS IN NON-COLLEGE CITIES	
	Number	Per Cent
Reasons given by "uncertain" group:		
Finances.....	562	79.0
Needed at home.....	64	9.0
Not prepared.....	42	5.9
Must work.....	14	2.0
Undecided on field.....	14	2.0
No desire.....	10	1.4
No college near home.....	5	0.7
Total.....	711	100.0
Reasons given by "no" group:		
Finances.....	556	56.0
No desire.....	117	11.8
Not prepared.....	105	10.6
Will take nursing.....	71	7.2
Needed at home.....	60	6.0
Must work.....	31	3.1
Will take postgraduate course in high school.....	31	3.1
Will take business course.....	13	1.3
Too young.....	8	0.8
Undecided on field.....	1	0.1
Total.....	993	100.0

Of the 978 Seniors in non-college cities who did not expect to enter college the next year, 96 pupils, or nearly 10 per cent, expected to enter a year later because they were too young or lacked the required number of high-school units for admission to college. Thirty-three, or about 3 per cent, hoped to enter college two years later.

Those in non-college cities who did not expect to attend college

were asked: "Do you have a definite position in view after you have graduated from high school? If so, what is it?" Six hundred and ninety-eight had no positions to enter after leaving high school. One

TABLE III
FUTURE VOCATIONS CHOSEN BY FIVE OR MORE HIGH-SCHOOL
SENIORS IN NON-COLLEGE AND COLLEGE CITIES

VOCATION	SENIORS IN NON-COLLEGE CITIES						SENIORS IN COLLEGE CITIES	
	"Yes" Group		"No" Group		"Uncertain" Group		Number	Per Cent
	Number	Per Cent	Number	Per Cent	Number	Per Cent		
Accountant.....	35	5.1	31	4.5	47	2.2
Army or navy.....	11	1.6	18	2.6	9	.4
Aviation.....	14	4.5	27	3.9	16	.7
Business.....	5	.7	26	3.8	71	3.3
Clerk.....	11	1.6	8	1.2	8	.4
Cosmetologist.....	38	12.1	30	4.3	11	.5
Draftsman.....	14	4.5	50	7.3	133	6.2
Engineer.....	7	2.2	14	2.0	5	.2
Farmer.....	14	2.0	15	2.2	8	.4
Homemaker.....	135	19.5	25	3.6	41	1.9
Journalist.....	6	.9	9	1.3	7	.3
Librarian.....	48	15.3	22	3.2	30	1.4
Mechanic or electrician.....	18	5.8	6	.9	58	2.7
Minister or lawyer.....	14	4.5	14	2.0	125	5.8
Musician or artist.....	17	5.4	30	4.3	17	0.3
Nurse or dietitian.....	77	24.6	89	12.8	212	30.9
Printer.....	Total.....	313	100.0	693	100.0	686
Scientist.....					100.1	2,137
Social service.....						99.9
Stenographer or secretary.....						
Teacher.....						
Other vocations.....						
Not decided.....						

hundred and fifty listed 16 types of work that they expected to enter, and 130 did not answer the questions.

All Seniors were asked: "Have you decided on a profession or vocation? If so, what?" The numbers and the percentages who had selected various vocations are shown in Table III. Most of the

names of vocations are self-explanatory. "Engineer" includes all branches of engineering: civil, mechanical, electrical, chemical, etc. Ministry and law are grouped together because they are both professions usually requiring more than four years of college training. Music and art include interior decorating, dramatics, dancing, design, etc. Science is an omnibus, as it includes all branches, such as forestry, medicine, pharmacy, chemistry, and research.

EFFECT OF A LOCAL PUBLIC JUNIOR COLLEGE ON THE EDUCATIONAL INTENTIONS OF HIGH-SCHOOL SENIORS

All Seniors in non-college cities were asked: "If there were a public junior college in your city, offering two years of college work as described above,¹ would you attend it next year if (a) tuition were free? (b) tuition were \$75 per year or less?" The replies to these questions are given in Table IV. It may be surprising to find that in the "uncertain" and "yes" groups the percentage of pupils who would attend a junior college where some tuition is charged is higher than the percentage who would attend a free college. This attitude may have been due to tradition in this state, where most colleges have high tuition, or it may be that the Seniors believed they would get a better school if they paid some of the expense. They may have been comparing the proposed junior colleges with the Emergency Collegiate Centers and wanted the junior colleges to be different from those. In any case it is likely that the students will get more from the junior college and appreciate it more if they pay a small tuition fee.

In view of the high cost of college education in New York State and the large number of pupils who gave financial reasons as the cause for not going or for uncertainty about going to college, it is not surprising to find the great majority of these groups showing interest in attending a proposed public junior college. Even 41 per cent of the Seniors who expected to go to college would attend a public junior college if established. The next question read: "Would you attend for two years or one year?" Eighty and four-tenths per

¹ In the introduction to the questionnaire a junior college was briefly defined and described, and the three general types of curriculums were described. This introduction was necessary, for most high-school pupils in New York State had probably never heard of a junior college.

cent of the "uncertain" group, 79.0 per cent of the "yes" group, and 71.4 per cent of the "no" group would attend for two years.

The Seniors were asked: "If you would attend the junior college next year, state your reasons." These reasons were tabulated and are summarized in Table IV. Again financial reasons stand out prominently, since "Live at home" is closely enough related to

TABLE IV
ANSWERS GIVEN BY HIGH-SCHOOL SENIORS IN NON-COLLEGE CITIES
TO QUESTIONS REGARDING ATTENDANCE AT LOCAL JUNIOR
COLLEGE IF ONE WERE ESTABLISHED IN THEIR CITY

	"YES" GROUP		"NO" GROUP		"UNCERTAIN" GROUP	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Would attend local free junior college.....	30	8.6	351	35.9	258	36.1
Would attend local junior college with \$75 tuition.....	113	32.6	278	28.4	391	54.8
Total interested in local junior college.....	143	41.2	629	64.3	649	90.9
Reasons for attending local junior college:						
Financial reasons.....	98	44.7	89	14.1	168	24.1
Live at home.....	75	34.2	56	8.8	129	18.5
Prepare for senior college.....	25	11.4	59	9.3	120	17.2
Opportunity for vocational training.....	12	5.5	288	45.5	116	16.7
Opportunity for further study.....	9	4.1	141	22.3	139	20.0
Can work while in college.....					15	2.2
Too young to get work.....					9	1.3
Total.....	219	99.9	633	100.0	696	100.0

"Financial reasons" to be included under that general heading. The large percentage in the "no" group who seemed to want the opportunity for vocational training is interesting.

All Seniors were asked the following question:

Which of the groups of courses would you be interested in?

Group I. A two-year college course preparatory to continuing your education in some other college, university, or professional school.

Group II. A two-year college course preparing you for some specific work or vocation similar to those suggested in the introduction.

Group III. A two-year college course to complete your general cultural education and to prepare you for effective and intelligent citizenship.

The replies to these items are summarized in Table V. The replies to a similar question by the "yes" group from the college cities are also included in the table for comparison. As would be expected on the basis of a priori reasoning, the "yes" group were interested in a course preparing them for transfer to senior college or professional college. The "uncertain" group had tendencies in the same direction, while the "no" group were much more interested in the voca-

TABLE V
TYPES OF JUNIOR-COLLEGE COURSES PREFERRED BY HIGH-SCHOOL
SENIORS IN NON-COLLEGE AND COLLEGE CITIES

GROUP	PREFER COURSE—					
	Preparing for Senior College		Preparing for Specific Work or Vocation		Completing General Education	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Seniors in non-college cities:						
"Yes" group.....	121	84.6	19	13.3	3	2.1
"No" group.....	84	14.0	438	73.1	77	12.9
"Uncertain" group.....	270	41.9	326	50.6	48	7.5
"Yes" group in college cities.....	271	48.3	133	23.7	157	28.0

tional and semi-professional training. It is interesting to note that the "no" group showed more interest than the other two in general, cultural, and civic education. These percentages agree with the experiences of established junior colleges, where it has been found that most of the students are interested in the courses similar to those found in traditional liberal-arts colleges. Less popular are the vocational and semi-professional courses. A long period of gradual education of the public has been necessary to bring students to desire the cultural and civic curriculums. It was rather surprising to the writers to find the distribution shown for the "yes" group from college cities. Particularly, the percentage interested in general, cultural, and civic education seems much higher than experience or a priori reasoning would lead one to expect.

STUDENT DEMAND FOR PUBLIC JUNIOR COLLEGES

Suppose public junior colleges were to be established in the ten non-college cities included in this study. What would be the probable enrolment in each institution? In Table VI are listed the numbers from the "uncertain," "yes," and "no" groups of each city who indicated interest in attending a public junior college, either free or with a tuition of \$75 or less. Column 5 gives the total of Columns

TABLE VI
PROBABLE JUNIOR-COLLEGE ENROLMENTS IN TEN NON-COLLEGE
CITIES IN NEW YORK

CITY	NUMBER OF SENIORS INDICATING INTEREST IN JUNIOR COLLEGE				PER- CENTAGE OF SENIOR CLASS ANSWER- ING QUES- TION- NAIRE	MATHEMATICAL FACTORS USED IN ESTIMATION		PROB- ABLE ENROL- MENT
	"Yes" Group	"No" Group	"Un- certain" Group	Total		A	B	
I	2	3	4	5	6	7	8	9
Amsterdam.....	8	93	66	167	84	1.2	1.8	301
Binghamton.....	23	67	89	179	57	1.8	2.7	483
Kingston.....	24	45	45	114	53	1.9	2.8	310
Lockport.....	6	32	57	95	53	1.9	2.8	266
Middletown.....	10	11	8	29	19	5.3	8.0	232
Newburgh.....	14	55	72	141	68	1.5	2.2	310
Rome.....	3	18	20	41	20	5.0	7.5	308
Utica.....	30	198	170	485	99	1.0	1.5	728
New Hartford.	8	15	21					
Whitesboro.....		20	23					
Watertown.....	7	40	45	92	50	2.0	3.0	276
White Plains.....	10	35	33	78	61	1.6	2.4	187

2, 3, and 4. Column 6 indicates the percentage of the Senior class in each high school who answered the questionnaire. Column 7 indicates the multiplying factor necessary to step the total up to the basis of 100 per cent, on the assumption that those who answered the questionnaire are a fair sample of the whole Senior class. This assumption is not altogether defensible, but it is a help in arriving at an approximate figure. If only half the students who enter the junior college return for a second year and a new entering class equal in size to the first follows, the second-year enrolment would be 1.5 times the first-year enrolment. Multiplying the factor in Column 7

by 1.5 gives Factor B (Column 8). The product of Factor B and the total shown in Column 5 gives the approximate enrolment (Column 9) that may be expected in a public junior college when in full operation in each of the cities.

If any of the estimates seem too generous, attention may be called to the compensating facts that the many postgraduate pupils now enrolled in the high schools have not been included in this study

TABLE VII

PREDICTED JUNIOR-COLLEGE ENROLMENTS IN TEN NON-COLLEGE CITIES IN
NEW YORK INCLUDING PROBABLE ENROLMENTS FROM TOWNS
WITHIN RADIUS OF FIFTEEN MILES OF EACH CITY

CITY	HIGH SCHOOLS IN RADIUS OF 15 MILES		PREDICTED JUNIOR-COLLEGE ENROLMENT	
	Enrolment	Seniors	11.7 Per Cent of High-School Enrolment	67.1 Per Cent of Number of High-School Seniors
Amsterdam.....	3,630	785	425	527
Binghamton.....	3,312	589	388	395
Kingston*.....	2,643	436	309	293
Lockport.....	4,111	622	481	417
Middleton.....	3,033	429	355	288
Newburgh*.....	3,112	459	364	308
Rome†.....	3,282	603	384	405
Utica‡.....	9,113	1,107	1,066	743
Watertown.....	2,640	502	309	337
White Plains§.....	14,908	2,953	1,744	1,981

* West of Hudson River.

† Exclusive of Utica.

‡ Exclusive of Rome.

§ East of Hudson River, northwest of Long Island Sound.

and that consideration has not been given to the effect of publicity and to the growing favor for a good, strong, rapidly developing junior college which is really serving the needs of the community. For these reasons even a larger percentage of students may be expected to attend the junior college in future years. In addition, there are many small high schools in villages, towns, and cities surrounding the cities studied which are within easy commuting range. The junior colleges will draw students into them just as consolidated and district high schools draw pupils at their level.

Joyal found that junior-college enrolments in California are ap-

proximately 11.7 per cent of the high-school enrolments of the county and 67.1 per cent of the number of high-school graduates in the county.¹ These percentages would be high for New York State until the junior colleges become well established. Weather and road conditions in this state would cut down an institution's radius of influence. In Table VII are summarized the high-school enrolments and the number of Seniors in all the cities in question and in the towns within a radius of fifteen miles of these non-college cities. In the last two columns are presented the predicted junior-college enrolments on the basis of the percentages found by Joyal.

Many authorities agree that a public junior college should have an enrolment of at least 150 to be allowed to continue.² Giving consideration to the problem of efficiency of operation and reasonably low cost per student, some place the minimum figure at 200.³ A

¹ Arnold Edward Joyal, *Factors Relating to the Establishment and Maintenance of Junior Colleges, with Special Reference to California*, p. 412. University of California Publications in Education, Vol. VI, No. 6. Berkeley, California: University of California Press, 1932.

² The following authorities agree on a minimum enrolment of 150 for a junior college:

a) F. P. O'Brien, "Conditions Which Justify Establishing a Junior College," *School Review*, XXXVI (February, 1928), 128-37.

b) Frederick Lamson Whitney, *The Junior College in America*, p. 186. Colorado Teachers College Education Series, No. 5. Greeley, Colorado: Colorado State Teachers College, 1928.

c) W. E. Gattis, "Certain Conditions Which Justify the Establishment of Public Junior Colleges," *Texas Outlook*, XIII (May, 1929), 37.

d) C. R. Cockrell, "Under What Circumstances Should a Junior College Be Established?" *American Association of Junior Colleges—Ninth Annual Meeting* (1928), p. 126.

e) T. C. Holy, "Criteria for the Establishment of Public Junior Colleges," *High School Teacher*, V (April, 1929), 118-20, 133-34.

³ The following authorities agree on a minimum enrolment of 200 for the junior college:

a) Leonard Vincent Koos, *The Junior College*, II, 581. Research Publications of the University of Minnesota, Education Series, No. 5. Minneapolis, Minnesota: University of Minnesota, 1924.

b) Harold F. Clark, "Junior College Costs," *Some Phases of the Junior College Movement*, p. 73. Bulletin of School of Education, Indiana University, Vol. IV, No. 1. Bloomington, Indiana: Bureau of Co-operative Research, Indiana University School of Education, 1927.

c) G. F. Zook, "Model Junior College Legislation," *American Association of Junior Colleges—Tenth Annual Meeting* (1929), pp. 40-46.

d) Arnold Edward Joyal, *op. cit.*, p. 422.

reasonably small junior college may have some advantages over an extremely large institution in affording personal contacts, small classes allowing more individual attention and better instruction. The optimum enrolment may be between 250 and 500. The probable enrolments shown in Tables VI and VII indicate that all the cities studied could easily supply the necessary students if junior colleges were to be established in them.

SUMMARY

This study has shown a real need for public junior colleges in New York State. College enrolments are limited by high costs, their admission policies, and their curriculums. The high schools of the state are burdened with postgraduate pupils. Great numbers of high-school graduates have no hope of getting any further education, and, in these days of unemployment and the probably permanent shorter work week, they cannot get jobs. Rather than force them to loaf on the streets, society should give them opportunities for the type of education in which they have shown an interest by their answers to this questionnaire.

The results of this study indicate that a certain few cities in New York need public junior colleges and could easily supply the necessary students if they were established. Nothing has been said about how these colleges could or should be supported nor about minimum standards for their establishment and continuance. The next step is for the state of New York through its Education Department to press for legislation allowing public junior colleges and to start the machinery going whereby a modern and adequate public junior college program may be carried out.

TOWARD A CHANGING CURRICULUM IN SCIENCE

KENNETH E. ANDERSON
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Changing times demand a changing curriculum. If curriculum revision is to keep step with a dynamic society, it must be continuous. Present-day publications often discuss science material still more or less in the stage of experimentation, and these discoveries gradually swell the body of known facts. To determine the kind and the amount of material on science appearing in current magazines and the relation of this material to the science curriculum, the writer made an analysis of twenty magazines often used in schools.

A questionnaire, prepared by Professor Smith and analyzed by the writer, was sent to 82 representative junior and senior high schools throughout the nation.¹ In 60 of these schools (73 per cent) the science departments actively fostered the use of magazines in the library or the classroom. The science departments of 10 schools (12 per cent) paid for subscriptions to magazines for classroom use from the department budget, and in 16 schools (20 per cent) the science-class pupils subscribed in common to one or more magazines. These data indicate that teachers of science consider the use of magazines necessary to effective presentation of their subject.

The need for an objective selection of magazines is apparent if conclusions based on an analysis are to possess meaning. The writer determined which magazines are read most frequently by adults and high-school pupils and those considered most desirable by making a survey of the literature on reading interests. The magazines subscribed to by a number of representative high schools and children's rooms of public libraries had been determined through a questionnaire prepared by Professor Smith and analyzed by the writer.² The

¹ Dora V. Smith, "Investigation of the Value and Use of Magazines in Junior and Senior High School Libraries." Unpublished study, University of Minnesota.

² Dora V. Smith, "Investigation of the Value and Use of Magazines in the Children's Rooms of Public Libraries." Unpublished study, University of Minnesota.

first twenty magazines, as determined by combining the results of the questionnaire and those of the writer's survey are given below in rank order.

1. National Geographic Magazine	10. Atlantic Monthly
2. Popular Mechanics Magazine	11. Review of Reviews
3. Literary Digest	12. American Magazine
4. Nature Magazine	13. Good Housekeeping
5. American Boy	14. Current History
6. Boys' Life	15. Harper's Magazine
7. St. Nicholas	16. Hygeia
8. Popular Science Monthly	17. Scientific American
9. American Girl	18. Scholastic
	19. School Arts Magazine
	20. Time

All available issues of these magazines for the months of January, April, July, and October, 1933, and for January and April, 1934, were

TABLE I
PERCENTAGE OF SPACE GIVEN TO SUBJECT-MATTER
FIELDS IN 1933 AND 1934 IN SIX NUMBERS OF
EACH OF TWENTY MAGAZINES

Subject-Matter Field	Number of Articles	Percentage of Space
Physics.....	216	19.2
Medicine and medical science.....	147	17.0
Zoölogy.....	75	16.5
Public health and sanitation.....	47	10.7
Astronomy.....	42	7.4
Chemistry.....	71	6.4
Personal health and hygiene.....	22	6.1
Aviation and aeronautics.....	51	4.8
Botany.....	27	4.3
Geology.....	17	2.9
Psychology.....	11	2.8
Weather and meteorology.....	15	1.9
Total.....	741	100.0

analyzed. If an article was eligible for analysis in meeting the definite criteria set up, the following material was noted in the analysis: title, author, number of column inches of space occupied, subject field, author's main purpose, main topic, number of photographs,

and number of diagrams. The terms in an article possessing scientific denotation or connotation were also recorded.

The analysis yielded a great amount of material, which was classified into a number of tables based on the percentage of space used or the frequency of mention. Accurate comparisons of percentages of space were obtained by using the factor, words per column inch, for each of the magazines.

The following questions, raised by the analysis, seem to be the most significant to persons interested in a science curriculum: (1) What subject-matter fields predominate in current magazines? (2) Which subject-matter fields and magazines contain the greatest amount of visual aids? (3) What are the outstanding topics in the various subject-matter fields? (4) What scientific terms are most frequently used in current magazines?

PREDOMINATING SUBJECT-MATTER FIELDS

The ranking of the subject-matter fields, according to the percentage of space received, is shown in Table I.

The magazine which contributed the largest percentage of space to each of the fields is shown in the following list.

Physics	Scientific American
Zoölogy	National Geographic Magazine
Astronomy and chemistry	Popular Science Monthly
Public health and sanitation, medicine and medical science, personal health and hygiene, and psychology	Hygeia
Botany	Nature Magazine
Aviation and aeronautics	Popular Mechanics Magazine
Geology	Literary Digest
Weather and meteorology	Literary Digest

Of the twelve subject-matter fields, those that received the most space in the various magazines are shown in the following list.

<i>Physics</i>	Scholastic
American Boy	School Arts Magazine
American Magazine	Scientific American
Harper's Magazine	<i>Medicine and medical science</i>
Literary Digest	Good Housekeeping
Popular Mechanics Magazine	Hygeia
Popular Science Monthly	Time

<i>Zoölogy</i>	<i>Astronomy</i>
Atlantic Monthly	St. Nicholas
National Geographic Magazine	<i>Aviation and aeronautics</i>
zine	Boys' Life
Nature Magazine	<i>Geology</i>
<i>Public health and sanitation</i>	Current History
Review of Reviews	

The *Literary Digest* was the most versatile magazine, contributing space to eleven fields.

VISUAL AIDS

When both diagrams and photographs are considered, the data indicate that zoölogy was given the greatest amount of visual material per article. Medicine and medical science contained the least amount of visual material per article. The *National Geographic Magazine*, *American Boy*, *Boys' Life*, and *Popular Science Monthly* contained the most visual material per article.

OUTSTANDING TOPICS TREATED

The main topics of each of the articles classified under the twelve fields were grouped into as many larger topics as possible. Thus, several articles might contribute to one main topic. It is not feasible to give here a picture of the number and the nature of the topics under each of the fields. However, the following topics are some of the outstanding discussions according to the percentage of space received.

Physics.—Radio reception and radio receivers; energy and the price system; modern methods of photography; streamlining and its relation to other factors; mechanical features of the latest automobile; wave mechanics, atoms, and electrons.

Medicine and medical science.—Cause, prevention, and cure of cancer; art of surgery; infantile paralysis; energy and body metabolism; life-expectancy; dental caries; indigestion.

Zoölogy.—Eagles, hawks, and vultures; woodpeckers; snakes; crows, magpies, and jays; bird conservation and migration; beetles; microscopic study of plant and animal life.

Public health and sanitation.—Health conditions in the tropics; regulation of foods and drugs; tuberculosis; the microscope and food adulteration; tuberculosis in cattle; the Federal Trade Commission and public health.

Astronomy.—The new two-hundred inch telescope; the canals and life on Mars; cyclones on the sun and weather on the earth; motion of planets; star clusters and satellites.

Chemistry.—Soaps tested and approved; preservation of foods; processes of plating; properties of sulphur and its compounds; the chemistry of gasoline and oil lubrication.

Personal health and hygiene.—The mating period: post-adolescence; personal hygiene; typical cases in which care and medical advice might have helped.

Aviation and aeronautics.—High-altitude flying and its problems; sports planes; aeronautical research and wind tunnels; stratosphere flights by balloon and aeroplane.

Botany.—Reproduction by division, bulbs, and layers; plant growth and artificial illumination.

TABLE II
DISTRIBUTION OF 2,278 SCIENTIFIC TERMS APPEARING IN 1933 AND
1934 IN SIX NUMBERS OF TWENTY MAGAZINES ACCORDING
TO NUMBER OF ARTICLES IN WHICH TERMS WERE USED

Number of Articles in Which Terms Were Used	Number of Terms Used	Percentage of Terms Used	Number of Articles in Which Terms Were Used	Number of Terms Used	Percentage of Terms Used
100-170.....	7	0.3	8.....	48	2.1
70-99.....	6	0.3	7.....	56	2.4
60-69.....	8	0.4	6.....	80	3.5
50-59.....	9	0.4	5.....	90	3.9
40-49.....	22	1.0	4.....	110	4.8
30-39.....	37	1.6	3.....	195	8.6
20-29.....	64	2.8	2.....	326	14.3
15-19.....	70	3.1	1.....	991	43.5
10-14.....	120	5.3	Total.....	2,278	100.0
9.....	39	1.7			

Geology.—Proof of the lost Atlantis continent; meteoritic theory of the Carolina bays; how volcanic steam is put to use.

Psychology.—Sex education.

Weather and meteorology.—Air currents and the weather; the relation of the sun to weather and energy; fogs.

SCIENTIFIC TERMINOLOGY

The frequency of use of terms possessing scientific denotation or connotation is presented in Table II. It is not feasible to list the 2,278 scientific terms. In Table III are listed the terms which appeared in thirty or more articles. Table II indicates that this selection represents only about 4 per cent of all the scientific terms.

IMPLICATIONS FOR THE SCIENCE CURRICULUM

The relative emphasis given the twelve subject-matter fields in the twenty magazines analyzed does not mean that instruction in

science should follow the same paths, but it brings out the fact that the science curriculum in the high school is not in harmony with the emphasis accorded the various fields of science in current magazines. Several fields—medicine and medical science, public health and sani-

TABLE III
SCIENTIFIC TERMS APPEARING IN 1933 AND 1934 IN THIRTY OR MORE
ARTICLES IN SIX NUMBERS OF TWENTY MAGAZINES AND
NUMBER OF ARTICLES IN WHICH EACH WAS USED

Term	Number of Articles	Term	Number of Articles	Term	Number of Articles
1. electricity.....	170	31. bacteria.....	48	61. mixture.....	37
2. science.....	156	32. current.....	47	62. tuberculosis.....	37
3. chemistry.....	153	33. light rays.....	46	63. magnesium.....	36
4. experimentation.....	143	34. liquid.....	46	64. amplifier.....	35
5. research.....	130	35. power.....	45	65. Fahrenheit.....	35
6. temperature.....	118	36. resistance.....	45	66. horsepower.....	35
7. laboratory.....	112	37. surgery.....	45	67. iron.....	35
8. radio.....	97	38. aluminum.....	44	68. tissue.....	35
9. engineer.....	83	39. diet.....	44	69. vibration.....	35
10. medicine.....	80	40. observer.....	44	70. alkaline.....	34
11. disease.....	76	41. acid.....	43	71. star.....	34
12. speed.....	75	42. generator.....	43	72. biology.....	33
13. heat.....	74	43. X ray.....	43	73. gasoline.....	33
14. pressure.....	69	44. absorption.....	42	74. invention.....	33
15. atmosphere.....	67	45. astronomy.....	42	75. muscle.....	33
16. apparatus.....	66	46. element.....	42	76. process.....	33
17. physician.....	63	47. health.....	42	77. spectrum.....	33
18. gases.....	62	48. volt.....	42	78. circuit.....	32
19. photography.....	62	49. cylinder.....	41	79. diagnosis.....	32
20. oxygen.....	61	50. diameter.....	41	80. species.....	32
21. microscopy.....	60	51. cancer.....	40	81. cell.....	31
22. aircraft.....	59	52. pilot.....	40	82. digestive sys- tem.....	31
23. physics.....	58	53. blood.....	39	83. weather.....	31
24. substance.....	58	54. reflection.....	39	84. aeronautics.....	30
25. radiation.....	57	55. vaporization.....	39	85. geology.....	30
26. energy.....	56	56. altitude.....	38	86. insect.....	30
27. atom.....	53	57. insulation.....	38	87. planet.....	30
28. infection.....	52	58. mechanics.....	38	88. propeller.....	30
29. lens.....	51	59. telescope.....	38	89. sound.....	30
30. solution.....	50	60. germs.....	37		

tation, personal health and hygiene, weather and meteorology, and psychology—which receive little emphasis in the high school except as parts of regular science courses, might be given more emphasis in the high-school curriculum.

The relative contributions of the various magazines to the different fields of science and the amount of visual materials used in these

magazines indicate that teachers of science could increase the effectiveness and permanency of their teaching by having specific knowledge of the type of treatment given science material in the most commonly used magazines.

The authors contributing to the outstanding topic classified under physics, "Modern Methods of Photography," give descriptions of methods of photography which were relatively unknown a few years ago. The leading topic in the field of medicine and medical science, "Cause, Prevention, and Cure of Cancer," gives descriptions of the present status of knowledge on cancer. It is such fragments of knowledge, found in all the subject-matter fields, which are an addition to present curriculum materials and which seem to possess the quality that would make for an enriched curriculum.

If the reading of pupils, especially pupils interested in science, is to be efficacious and worth while, the pupils should be familiar with a number of the scientific terms appearing in these magazines.

A study of the data in this investigation seems to indicate that the findings possess real value for the improvement of the science curriculum. It is not suggested that instruction in science should follow the topics here mentioned; but, since the material was found in current periodicals to which a number of high schools subscribe and which a number of high-school pupils read for varying purposes, the conclusion seems warranted that educators interested in the secondary-school curriculum in science should at least consider magazines as a source of materials.

The magazines analyzed in this study might be re-analyzed for materials in other fields, for example, the field of social studies. An analysis of such magazines as *Time*, *Literary Digest*, *Atlantic Monthly*, *Review of Reviews*, and *Harper's Magazine* would no doubt bring forth valuable materials that could be used in the teaching of social studies. In that field, also, curriculum revision should be undertaken at definite intervals, for the affairs of government and people, although lagging behind scientific development, are now beginning to move with bewildering rapidity.

Curriculum studies such as that reported in this article bring out the newer significant materials and are conducive to a changing curriculum.

SELECTED REFERENCES ON SECONDARY-SCHOOL INSTRUCTION

I. CURRICULUM, METHODS OF TEACHING AND STUDY AND SUPERVISION, AND MEASUREMENT

LEONARD V. KOOS
University of Chicago

This bibliography presents the first list of selected references in the fifth annual cycle of twenty lists covering practically the whole field of education which is being published co-operatively by the *School Review* and the *Elementary School Journal*. The order of appearance of the lists in the cycle will be identical with that of former years.

The reader is reminded that the term "instruction" as used for this and other lists in the cycle comprehends curriculum, methods of teaching and study, supervision, and measurement. Although most of the items deal with instruction in secondary-school grades, several are generic as to level and apply to either elementary or secondary education. Items included are those likely to be accessible to school workers; for the most part items appearing as fugitive publications or in local and state educational periodicals are not represented. The unusually large number of articles dealing with activism and integration makes it advisable, in order that representativeness may be assured, to be somewhat more selective in these areas than in others.

The present general list will be followed in February and March by lists in the subject fields prepared by well-known specialists.

CURRICULUM¹

1. BAGBY, R. O. "A Practitioner's View of the Virginia Course of Study," *Peabody Journal of Education*, XIII (March, 1936), 238-40.

¹ See also Item 356 (Draper) in the list of selected references appearing in the September, 1936, number of the *Elementary School Journal*.

Persons interested in brief reports of curriculum innovations will find a number described during the course of each year in the regular feature of the *School Review* which

A description of the Virginia course of study, which seeks to break down the artificial barriers between subject fields and to set up a school program conducive to a "well-organized, continuous process of learning from the kindergarten to the university."

2. BALYEAT, F. A. "Thirty-two States Plan Curriculum Revisions," *Clearing House*, XI (September, 1936), 11-13.
Discusses the trends in curriculum revision from 1927 to 1936.
3. BALYEAT, F. A. "Five Years of Curriculum Revision in Oklahoma City," *California Journal of Secondary Education*, XI (October, 1936), 380-84.
A brief survey of the progress made in the last five years in the high schools of Oklahoma City.
4. BLUME, CLARENCE E. "A Supervisory Program of Adjusting the Junior High School Curriculum to the Needs of the Pupils," *Education*, LVI (February, 1936), 340-44.
Outlines the steps taken to adjust the curriculum to the needs of the pupils.
5. BRIGGS, THOMAS H. (Chairman). *Issues of Secondary Education*. Report of the Committee on the Orientation of Secondary Education. Bulletin of the Department of Secondary-School Principals, No. 59. Chicago: Department of Secondary-School Principals of the National Education Association (5835 Kimbark Avenue), 1936. Pp. 372.
A majority of the "issues" discussed have important bearings on the curriculum in secondary schools.
6. BROADY, KNUTE O. *Enriched Curriculums for Small Schools*. Lincoln, Nebraska: Teachers College and University Extension Division, University of Nebraska, 1936. Pp. xvi+250.
The fruition of long study of, and contact with, small schools in suggestions for enrichment of their programs at both elementary-school and high-school levels.
7. BROWN, WILLIAM B. "What Is Happening to the Curriculum of the Los Angeles Secondary Schools," *California Journal of Secondary Education*, X (December, 1935), 561-65.
A brief review of certain important trends in curriculum and instruction at the secondary level in Los Angeles.
8. BUCKINGHAM, B. R. "The Relation of the Curriculum to the Textbook," *Reconstructing Education through Research*, pp. 146-50. Official Report of the American Educational Research Association, 1936. Washington: American Educational Research Association of the National Education Association, 1936.
Discusses the advantages of the textbook over learning from personal teaching and the relation of the curriculum to the textbook.

appears in the section of "Educational News and Editorial Comment" under the caption "Here and There among the High Schools."

9. CASWELL, HOLLIS L. "The Research Procedure in Fundamental Rebuilding of the Curriculum," *Reconstructing Education through Research*, pp. 142-46. Official Report of the American Educational Research Association, 1936. Washington: American Educational Research Association of the National Education Association, 1936.
Indicates four problems conceived by the author to be fundamental in rebuilding the curriculum and the type of research necessary for a sound solution of these problems
10. CLEM, ORLIE M., and KLYVER, RICHARD. "Curriculum Practices in the Six-Year Secondary School," *School and Society*, XLIV (July 11, 1936), 62-64.
Summarizes a questionnaire study of the curriculum practices in the six-year secondary school. Considers practices reported by fifty-four principals of six-year high schools in New York State and Pennsylvania and composite opinion as indicated by three professional groups.
11. CLINE, E. C. "Selectivity and Standards in American Secondary Education," *School Review*, XLIV (October, 1936), 586-89.
Shows how the Oliver P. Morton High School in Richmond, Indiana, divides its pupils and subjects into arbitrary-standard and effort-standard groups, satisfying both the demand for equal rights for all adolescents and insistence on the maintenance of standards.
12. COLLINGS, ELLSWORTH. "The Spirit of Play in Education," *Junior-Senior High School Clearing House*, X (February, 1936), 326-29.
Description of a junior high school in which purposeful play activities make up the curriculum.
13. DAVIS, CALVIN O. "Today's Junior High," *Nation's Schools*, XVII (June, 1936), 37-39.
Gives replies received from twenty-five representative junior high schools in North Central territory in response to an inquiry concerning curricular changes and the program of studies. Makes ten summarizations from these replies.
14. DOUGLASS, AUBREY A. "Scope and Sequence in the Curriculum," *California Journal of Secondary Education*, XI (October, 1936), 335-40.
Presents a summary of the work of the California Committee on Scope and Sequence of Major Learnings in the Curriculum.
15. DRAPER, EDGAR M. "Relating the Secondary School Curriculum to the Community," *Curriculum Journal*, VII (May, 1936), 11-16. Cleveland, Ohio: Society for Curriculum Study (% Western Reserve University).
Discusses the procedure followed in carrying out the programs of relating the school to the community in Oakland, California; Seattle, Washington; and Flint, Michigan.

16. FLOYD, OLIVER R. "Selecting and Organizing the Content of an Integrated Curriculum," *School Review*, XLIV (October, 1936), 577-85.
States and illustrates the principles governing curriculum reorganization in the University High School at the University of Minnesota. The purpose of the reorganization was integration without abandonment of subjects.
17. GREEN, ROBERTA LABRANT. "Developing a Modern Curriculum in a Small Town," *Progressive Education*, XIII (March, 1936), 189-97.
The report of instructional improvements in a small town, involving consideration of community problems.
18. HANNA, PAUL R., and RESEARCH STAFF, WORKS PROGRESS ADMINISTRATION, Project No. 65-97-295, Subproject No. 26. *Youth Serves the Community*. A Publication of the Progressive Education Association. New York: D. Appleton-Century Co., Inc., 1936. Pp. xiv+304.
Replete with illustrations of how pupils have contributed to community welfare and interest in matters of public safety, civic beauty, health, agricultural improvement, civic arts, local history, and surveys. Real help in a dynamic phase of the curriculum.
19. HOPKINS, L. THOMAS. "Curriculum Development," *Teachers College Record*, XXXVII (February, 1936), 441-47.
Discusses consciously formulated principles in accordance with which the Lincoln School curriculum has been built and is being rebuilt.
20. HUMPHREYS, J. ANTHONY. "General Education and Specialization," *Journal of Higher Education*, VII (June, 1936), 296-300.
A discussion of the data obtained in a study of students' choices of courses under the old and the new plans at the University of Chicago.
21. JOHNSON, ALVIN W. *The Program of Studies for the Secondary Schools of Nebraska, 1900-1935*. Lincoln, Nebraska: Union College Press, 1935. Pp. xviii+162.
Presents the offerings in the secondary schools, as found in the programs of studies of the past thirty-five years, and points out certain trends.
22. JUDD, CHARLES H. "Is Contact with Logically Organized Subject Matter Sufficient for the Education of Children?" *Elementary School Journal*, XXXVI (May, 1936), 657-64.
Stresses the importance of systematic thinking, which should be made the goal of instruction.
23. KILPATRICK, WILLIAM HEARD. *Remaking the Curriculum*. New York: Newsom & Co., 1936. Pp. 128.
Deals with the need for a new curriculum, more varied equipment, enriched teacher preparation, and a more enlightened attitude on the part of the general public.

24. KNOWLTON, DANIEL C. "Vitalization of Subject Matter through Guided Pupil Experiences," *Junior-Senior High School Clearing House*, X (February, 1936), 362-67.
Presents five principles to be considered if vitalization of subject matter in the junior high school is to be realized.
25. McCLELLAN, H. N. "Design for Curriculum," *Nation's Schools*, XVII (April, 1936), 27-29.
Presents a series of "operative principles" for the administration of the curriculum in a progressive program of secondary education in Berkeley, California.
26. MERIAM, JUNIUS L. "Changing Traditional Junior High-School Subjects into an Activity Curriculum," *Reconstructing Education through Research*, pp. 134-41. Official Report of the American Educational Research Association, 1936. Washington: American Educational Research Association of the National Education Association, 1936.
Points out the large opportunity of the junior high school, because of its freedom from the other divisions, to render educational and social service with the emphasis on action, as in real life, rather than on learning, as in school life.
27. MORRISETT, LLOYD N. "The Curriculum and Life," *Clearing House*, XI (September, 1936), 3-10.
"An indictment of high-school courses that evade reality."
28. "Practical Possibilities and Limitations in State Curriculum Programs," *Curriculum Journal*, VII (April, 1936), 23-30. Cleveland, Ohio: Society for Curriculum Study (% Western Reserve University).
Three addresses on one general subject presented at the 1936 annual meeting of the Society for Curriculum Study. F. W. Stemple in his paper, "State Uniformity vs. Local Adaptation," took a favorable view toward a state curriculum, using West Virginia as an illustration. Doak S. Campbell, speaking on "Possibilities and Limitations of Teachers' Contributions," pointed out the three determining factors in these contributions. Ernest Horn, in a paper on "Possibilities and Limitations in Integration," stressed the need for proceeding with care in a program of integration.
29. PROCTOR, WILLIAM MARTIN. "Six General Principles of Curriculum Revision," *Nation's Schools*, XVII (February, 1936), 16-17.
Fundamental principles of curriculum construction recommended to administrators interested in curriculum revision.
30. "Relating the School Curriculum to the Community," *Curriculum Journal*, VII (April, 1936), 1-2, 7-10, 10-12. Cleveland, Ohio: Society for Curriculum Study (% Western Reserve University).
Three addresses made to the general topic named at the 1936 annual meeting of the Society for Curriculum Study. Edgar Draper, speaking on the subtopic "Descriptions of Practice," listed the local programs through which secondary schools in general are being related to the community. S. Everett and Edgar Dale, speaking to the subtopic "Aids to the Teacher," presented papers entitled,

respectively, "Pamphlets and Other Enrichment Materials" and "Motion Pictures and Radio." Everett discussed the use in the school of community surveys, pamphlets and enrichment materials, pictorial materials, the radio, and the motion picture. Dale emphasized the importance of the radio and the motion picture as teaching aids and the need for equipping pupils with evaluatory methods.

31. RILEY, T. M. and BROWN, W. B. "The Secondary Core Curriculum," *Curriculum Journal*, VII (May, 1936), 8-10. Cleveland, Ohio: Society for Curriculum Study (% Western Reserve University).
Emphasizes the importance of a general core curriculum and lists the subjects that should be included and omitted.

32. "The Rôle of Subject-Matter Areas in an Integrated Curriculum," *Educational Research Bulletin*, XV (February 12, 1936), 53-66.
Presents concepts concerning special areas and interests in an integrated curriculum.

33. RUGG, HAROLD. *American Life and the School Curriculum*. Boston: Ginn & Co., 1936. Pp. xii+472.
In the words of the author, this book is his "first full-length treatment of the problems of American culture and education."

34. SMITH, HOMER J. "The Need of the Newer Subjects," *School Review*, XLIV (September, 1936), 497-505.
Considers the importance for adequate modern education of such subjects as art, music, industrial arts, commercial work, homemaking, agriculture, physical education, "the new citizenship," and speech.

35. THAYER, V. T. "A Basis for a New Secondary Curriculum," *Progressive Education*, XII (November, 1935), 478-83.
A brief report on the work of the Progressive Education Association's Commission on Secondary School Curriculum.

36. WILLIAMS, JOSEPH E. "Success of Semi-professional Curricula," *Junior College Journal*, VI (November, 1935), 77-82.
Summarizes questionnaire replies received from graduates of the semi-professional curriculums of Los Angeles Junior College.

METHODS OF TEACHING AND STUDY AND SUPERVISION¹

37. BARR, A. S. "Measurement in the Supervision and Improvement of Teaching," *Twenty-second Annual Conference on Educational Measurements, 1935*, pp. 25-31. Bulletin of the School of Education, Indiana University, Vol. XII, No. 1. Bloomington, Indiana: Bureau of Co-operative Research, Indiana University School of Education, 1935.
Considers the uses and the importance of measurement in supervision. Generic as to school level.

¹ See also Item 645 (Shannon) in the list of selected references appearing in the December, 1936, number of the *Elementary School Journal*.

38. BARR, A. S. "Some Principles of Good Supervision," *School Executive*, LV (January, 1936), 180-81.
A formulation of six principles intended to tell "how to become an efficient school supervisor." Generic as to school level.
39. BRIGGS, THOMAS H. "The Practices of Best High-School Teachers," *School Review*, XLIII (December, 1935), 745-52.
Reports the author's conclusions from records of extensive observation by a graduate student of classroom practices of teachers who were designated as "best" by principals of twenty-one high schools in New York City and suburban areas.
40. HARPER, CHARLES A. "Co-ordinator, Not Supervisor," *School Review*, XLIV (March, 1936), 199-201.
Urges the substitution of co-ordination, "the relation of equal and essential parts in an effective organism," for supervision, "the relation of a superior to an inferior."
41. HIGGINS, SISTER M. XAVIER. *Reducing the Variability of Supervisors' Judgments*. Johns Hopkins University Studies in Education, No. 23. Baltimore: Johns Hopkins Press, 1936. Pp. x+70.
An experiment to determine the reduction of variability of supervisory ratings by use of an analysis chart.
42. JESSEN, CARL A. "Direction of Secondary Education," *School Life*, XXI (March, 1936), 175-76.
An analysis of responses received from cities having populations of thirty thousand or more in reply to an inquiry to ascertain what personnel is specifically assigned to administration and supervision of secondary education.
43. KUNDINGER, J. F. "The Techniques of Educational Research Employed in Studies on Supervision," *Catholic Educational Review*, XXXIV (April, 1936), 206-15.
Analyzes 104 articles on supervision found in six complete volumes of certain educational periodicals for the purpose of classifying the various techniques of educational research employed in supervision. Includes a bibliography of 52 references on supervision.
44. MATHEWS, C. O., and TOEPFER, NORA. "Comparison of Principles and Practices of Study," *School Review*, XLIV (March, 1936), 184-92.
A comparison of the techniques of study used by a selected group of pupils in a rural six-year secondary school with those recommended in five well-known study manuals.
45. PENNSYLVANIA DEPARTMENT OF PUBLIC INSTRUCTION. *The Use of Radio in Developing Instructional Programs*. Pennsylvania Department of Public Instruction Bulletin No. 95. Harrisburg, Pennsylvania: State Department of Public Instruction, 1935. Pp. 32.

An informational bulletin designed to encourage the use of radio in the Pennsylvania schools.

46. PETERS, CHARLES C. "The Penn State Experiments on the Contract Plan of Teaching," *Reconstructing Education through Research*, pp. 44-49. Official Report of the American Educational Research Association, 1936. Washington: American Educational Research Association of the National Education Association, 1936.

A summary of the results of seventeen controlled experiments comparing the contract plan with the usual recitation method of instruction.

47. *Psychology of Learning, General Methods of Teaching, and Supervision*. Review of Educational Research, Vol. VI, No. 3. Washington: American Educational Research Association of the National Education Association, 1936. Pp. 277-352.

Revises and brings down to date the Review of Educational Research for October, 1933, which appeared under an identical title. Many publications reviewed apply to the secondary-school level.

48. ROSENSTENGEL, W. E., and DIXON, FRED B. "General Study Habits of High-School Pupils," *School Review*, XLIV (February, 1936), 127-31.

A survey of general study habits based on a self-analysis blank on study habits filled out by pupils.

49. SHANNON, J. R. "The Violative Supervisor," *American School Board Journal*, XCIII (September, 1936), 18.

Puts forward six "principles" of supervision. Generic as to school level.

50. WOODRING, MAXIE N. "The Use of the Stenographic Lesson in Improving Instruction," *Teachers College Record*, XXXVII (March, 1936), 504-17.

The stenographic report as an observational technique in a supervisory program.

MEASUREMENT

51. BUROS, OSCAR K. *Educational, Psychological, and Personality Tests of 1933, 1934, and 1935*. Studies in Education, No. 9. Rutgers University Bulletin, Vol. XIII, No. 1. New Brunswick, New Jersey: School of Education, Rutgers University, 1936. Pp. 84.

A complete bibliography of tests published during the years indicated in the title and a few tests published prior to 1933, together with conveniences for using the list, such as a key to a classification of tests, a directory of publishers, and indexes.

52. "Evaluation in Theory and Practice," *California Journal of Secondary Education*, XI (May, 1936), 275-95.

Among subtitles in this symposium, suggesting the scope of the discussion, are: "Evaluating the Intangibles," "Evaluation by the Modern Secondary School Teacher—A Forward Look," and "Pupil-Teacher Partnership in Measuring Progress." Contributors are: Marvin L. Darsie, J. Murray Lee, Ethel Percy

Andrus, Grayson N. Kefauver, D. Welty Lefever, George H. Merideth, and M. E. Bennett.

53. GREENE, HARRY A., and JORGENSEN, ALBERT N. *The Use and Interpretation of High School Tests*. New York: Longmans, Green & Co., 1936. Pp. xxvi+614.
A comprehensive treatise including special chapters on testing in the various subject fields and on the measurement of general educational achievement.

54. HOPKINS, L. THOMAS. "The Problem of Measurement Involved in Integration," *Reconstructing Education through Research*, pp. 201-5. Official Report of the American Educational Research Association, 1936. Washington: American Educational Research Association of the National Education Association, 1936.
Discusses the issues involved in, and lists some of the new forms of measurement required by, a process of learning emphasizing personality adjustment.

55. JUDD, CHARLES H. "The Third Conference of the International Inquiry on School and University Examinations," *School Review*, XLIII (November, 1935), 653-63.
An interpretation of the deliberations and outcomes of a conference on examinations which included representatives from England, Scotland, France, Germany, Switzerland, and the United States.

56. LEE, J. MURRAY. *A Guide to Measurement in Secondary Schools*. New York: D. Appleton-Century Co., Inc., 1936. Pp. xvi+514.
A comprehensive treatise on measurement at the secondary level, which includes, among others, chapters on measurement in supervision, measurement in marking, use of tests in diagnosis and remedial instruction, use of tests in the classroom, and improvement of teacher-made tests.

57. SANGREN, PAUL V. "Present Tendencies in the Uses of Educational Measurements," *Review of Educational Research*, V (December, 1935), 455-68.
Reviews the research studies that have appeared during the period from February, 1933, to June 1, 1935, on the subject of trends in the uses of educational measurements.

58. TYLER, RALPH W. "Appraising Progressive Schools," *Educational Method*, XV (May, 1936), 412-15.
A brief description of the plan and the methods of appraisal being applied in the thirty secondary schools represented in the Eight-Year Study of the Commission on the Relation of School and College of the Progressive Education Association.

59. WRIGHTSTONE, J. WAYNE. "Constructing an Observational Technique," *Teachers College Record*, XXXVII (October, 1935), 1-9.
A record of efforts to develop, by observational technique, objective measures of "pupil participation in defined behavior categories of initiative, co-operation, and the like" in classroom discussions and recitations in secondary schools.

Educational Writings

REVIEWS AND BOOK NOTES

The thinking process, with suggestions on how to improve it.—A new book on the psychology of thinking¹ is divided into three parts. The first describes the method used in gathering material for the book. The author met with a group of graduate students once a week during the school year. At these meetings he presented questions or problems and attempted, in collaboration with the members of the group, to observe and describe the thought-processes involved in arriving at solutions. The second part presents the analysis of the thought-processes arrived at through this procedure. Following each chapter in this part are suggestions for improving the particular thought-process discussed. In the third part are presented an outline of the entire process of thinking and some suggestions on what education can do to improve thinking. References are given at the end of each chapter and a general bibliography at the end of the book.

A careful reading of the volume leaves the reviewer with a feeling of confusion. The problem of the nature of the thought-processes and their improvement seems not to have been greatly clarified or simplified. This result may be caused by lack of clarity in the thought-processes of the reviewer, but it is certainly not due to his lack of interest in the problem or failure to study the present volume thoroughly. Comparison with discussions of the same problem by James, Dewey, and Woodworth leaves the reviewer with the impression that Symonds' work does not add greatly to the understanding of the nature of thinking. Its most substantial and lasting contributions probably lie in the suggestions gleaned from published literature for improving thinking through classroom exercises and selected teaching methods and in the presentation, in the last five chapters, of common errors in thinking and suggestions for education. Here, particularly in the chapters on testing and on research, the author is at his best.

In his first sentence the author states that the book grew out of a desire to satisfy his own curiosity about the nature of the thinking process. Rather than accept available analyses of the thinking process, he proceeded to satisfy his curiosity by independent study using essentially introspective techniques. He

¹ Percival M. Symonds, *Education and the Psychology of Thinking*. New York: McGraw-Hill Book Co., Inc., 1936. Pp. xii+306. \$2.50.

is to be commended for attempting to carry out a research in a field that is certainly as difficult as any to which to apply research techniques. The attempt to shed light on a complex and difficult problem is entirely laudable even though one may have serious doubts as to the possibility of studying with any degree of objectivity such a thing as the thought-process. In the final analysis, all that we can learn directly about the process of *thinking* is what we *think* about it, and the whole problem thus becomes a rather complicated matter.

The book will appeal primarily to teachers and research workers in psychology and education. The applications to education should be transmitted to classroom teachers by those concerned with the training of teachers and the improvement of instruction. The publishers have done a fine piece of work and are to be congratulated on their willingness to venture in this field.

VICTOR H. NOLL

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History of educational thought.—During periods of social uncertainty, such as that of the past few years, students expect a re-evaluation of social institutions. History is scrutinized for suggestions. Renewed interest appears in testing theories upon which social structures rest. The volume under review¹ attempts to trace the evolution of the theories about educating and conditioning youth which have been held from primitive to present times, in a way that offers an integrated history and philosophy of education.

Of the eight units of Part I, which is entitled "Foundations of Educational Theory in Ancient and Medieval Times," the first three are devoted, respectively, to primitive education; to education for social stability as found among early Chinese, Hindus, and Persians; and to the moral nationalism of Mosaic Hebrews. Greek education is treated in terms of Athenian individualism, with preliminary comments on Homeric Greece and passing reference to Sparta. Unit V characterizes Roman education as disciplinary and utilitarian—narrowly so during the early period, more broadly so during the period of wealth and Athenian influence. Two units set forth the humanitarian influence of Jesus, contrast it with the dogmas of Christianity under scholasticism, sketch the training of social leaders and snobs through the court schools of disintegrated medievalism, and review the education through guilds of a rising bourgeoisie. Unit VIII relates to Saracen culture and education in Spain, which gave "an inspiring, but little heeded, example to the Christian countries of Europe" (p. 213).

Part II is entitled "Modern Educational Theories." The first of the nine units is devoted to humanism: first in the individual sense of a Petrarch or Boccaccio; then in the social sense of a Thomas à Kempis or Desiderius Eras-

¹ Elmer Harrison Wilds, *The Foundation of Modern Education: Historical and Philosophical Backgrounds for the Interpretation of Present-Day Educational Issues*. New York: Farrar & Rinehart, Inc., 1936. Pp. xii+634.

mus; finally as degenerating into Ciceronian formalism. The conflict of Reformation and counter-Reformation is treated in Unit X. The coming of science and realism in education is then considered, with attention to thought such as that of Milton, Franklin, Montaigne, Bacon, Comenius, and Hecker. Discussions of the reactionary influences of Locke and the Puritan disciplinarians and of the rationalism of Voltaire and the "enlightenment" group make up Unit XII. A unit is devoted to naturalism, centering in the views of Rousseau.

Units XIV-XVII are each given more space than preceding units. Unit XIV deals with French, Prussian, and American nationalism, as urged in the respective countries by such men as Condorcet and Mirabeau, Frederick the Great and Fichte, De Witt Clinton, Webster, and Lincoln. Developmentalism is thought of as originating in biology and having been carried into education by such leaders as Pestalozzi, Herbart, Froebel, G. S. Hall, James, and Thorndike. Determinism is considered in terms of measurement and laboratory psychology, which have spread to many countries and to several aspects of education. The final unit is devoted to recent emphasis on social education, one group of educators stressing social integration, conservation, and the socially efficient individual, and opponents urging experimentation, constructive criticism, and group co-operation.

The somewhat unique organization of the units makes the book particularly useful to beginners. A "Preview," which sketches the setting and theme of the movement considered, is followed by the "Discussion," which is organized according to aims, types of education, content, agencies, organization, and methods stressed by the movement. The unit is concluded by a chart recapitulating the chief points, a list of "Collateral Reading References," and a list of "Questions for Class Discussion." Reviews at the ends of Parts I and II may seem repetitious, but they make clear the relations among units. There is a thirty-two-page index. An accompanying workbook has been prepared.

Wilds has canvassed an extensive body of material, from which he has made particularly happy selections of personages and excerpts to characterize leading educational movements. The treatment is elementary and, for use as a textbook in college, should be supplemented by readings and workbook material. However, the book gives, within reasonable space, an integrated review of significant educational theory. Its clear, smooth diction should add to its attractiveness for teachers in service, experienced administrators interested in newer views concerning educational history, and laymen interested in social and educational problems, as well as college students.

HAROLD H. PUNKE

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French grammar informal in emphasis.—Two French grammars by Roux¹ come at a time when the market is rather generously supplied with textbooks of

¹ Louis A. Roux, *Premier cours de français*, pp. xiv+432, \$1.48; *Second cours de français*, pp. xvi+550, \$1.76. New York: Macmillan Co., 1936.

this type. It is to be anticipated, therefore, that some distinctive selling points have had to be incorporated. French grammar being French grammar under any cover, it may further be assumed that the new features would necessarily have to do with organization, presentation, and illustration of the material and with the format of the books.

The development of each lesson illustrates no striking departure from the conventional order: there is a vocabulary; a passage of generous length for reading, followed by a questionnaire on the material; grammar; and exercises for oral and written work. In each lesson there also appears a short list of convenient and idiomatic expressions which facilitate the use of French in simple class conversation. These phrases are well chosen in that they make available expressions which are most likely to apply in oral dialogue of the type occurring in classrooms. The inclusion of a set of rules for pronunciation at the beginning of the first book is not new in itself, but the rules have here been admirably simplified. The indispensable table of regular and irregular verb conjugations is to be found in each book, followed by a brief reference vocabulary in the customary place. So much for the nondistinctive features!

Throughout both books there is emphasis on the early acquisition of a reading knowledge of French. This plan is thoroughly in accord with the pedagogy of modern language. The aim is accomplished by the introduction of a vocabulary carefully selected for range and frequency according to the Vander Beke *French Word Book* and by a minimization of formal grammatical rules—an arrangement which also helps to maintain interest, especially in the case of younger pupils. The necessary grammar is presented unobtrusively in a fashion to make it as "painless" as possible. The rules are stated in simple, practical language so that the pupil should easily be able to comprehend them for himself.

Perhaps the most striking feature of Roux' two works (one hesitates to call them "grammars," for that name implies an academic structural treatment which has been greatly minimized here) is the manner in which they have been dressed up with various illustrations, many of them drawings executed by the able hand of A. Gladys Peck. The first book especially is richly and aptly illustrated by everyday scenes from French life with legends in French. On the whole, these contribute a great deal to the informal air of the works. There is a conspicuous absence of the stock pictures of cathedrals and harbors.

The two books—sequential, of course—should be adaptable to almost any level of instruction, from junior high school on. The material is practical and informal enough to appeal to a wide range of pupil maturity or immaturity. The publishers are to be congratulated for setting up the books in attractive and sturdy form. Teachers do not need to be told that few schoolbooks receive harder wear than textbooks in foreign language.

FRANCIS F. POWERS

UNIVERSITY OF WASHINGTON

A reason for studying algebra.—It is interesting to note that, after all these years of emphasis on the desirability of a redistribution of the material of mathematics in Grades VII, VIII, and IX, it is still worth the time of an author and the investment of a publisher to issue a textbook for Grade IX which takes no cognizance whatever of this movement. This observation in no way constitutes a reflection upon the textbook under review¹ but rather on the practices of those schools whose curriculums justify the publication of the book.

The authors of this series of textbooks in algebra have made several important contributions to the improvement of instructional material in this time-honored subject. Their material offered for the study of graphs is undoubtedly the most comprehensive, from the standpoint of variety, and the most interesting, from the standpoint of practical applications, of that found in any algebra textbook in print. Furthermore, the material occurs early enough in the course to catch the pupil before he begins to bog down in an attitude of skepticism and questioning concerning the values of algebra. This experience with graphs should do much to help the pupil over some of the unavoidable drill on mechanics which he must have if he is really to master even the simpler techniques.

Another important contribution is made in the selection of the problem material. The authors have used great ingenuity in applying algebraic techniques to a wide variety of situations which should be of interest to high-school children. They have not accepted in its entirety the philosophy of those who would include in the textbook only such problems as a person might reasonably be expected sometime to meet in everyday life. Many of the problems are of the "answer-known" type, and some describe situations which could not possibly arise in the form implied by the statement. However, the situations involved are probably interesting to children, and many of them possess considerable novelty. Since the reviewer is of the opinion that the unreality of problem material has not been a major factor in the loss of children's interest in the subject, he does not consider the presence of such material in this book a liability.

The first book assumes that pupils have not had any algebra in Grade VII or VIII. Introduction to the subject comes by way of formulas and the simpler manipulations with formulas. Simple equations and problems are introduced early. Equations are likened to riddles, and later on problems are compared to puzzles. Some effort has been made to provide an expanded discussion of the mechanics of algebra, in order that the teacher's blackboard explanations might be less necessary, but in some cases these verbal instructions seem difficult. As a whole, the book may be a bit difficult for some classes if all the material is used. There is more drill material than any one class should use. When the operations with directed numbers are taught, rules are introduced before the pupil has learned to carry out the operations. In general, only those topics are taken up, and only those degrees of difficulty of these topics are reached, which

¹ C. Newton Stokes and Vera Sanford, *First Course in Algebra*, pp. vi+440, \$1.28; *Second Course in Algebra*, pp. viii+388, \$1.28. New York: Henry Holt & Co., 1936.

the best modern thought can justify in a ninth-grade course. On the whole, the book may be said to represent a distinct advance in algebra-teaching.

The second book shows a high correlation with science. Many important and interesting applications of algebra are brought into the course. The chapter headings do not adequately indicate the wealth of interesting material found in the body of the book. In addition, certain topics entirely within the range of ability of high-school pupils, but not usually found in textbooks in "advanced algebra," are included, presumably for the purpose of increasing the practical value of the subject and whetting interest in further study. As examples of these topics the following may be mentioned: the slope of a line, the cricket formula, extraneous roots, the parabola and its uses, properties of an ellipse, interpolation, the chessboard problem, decreasing geometric progressions, geometric progressions in biology, Gunter's scale, the slide rule, Pascal's triangle, mathematical induction, the normal-distribution curve, the compound-interest law, depreciation, amortization, insurance as an investment, the number e , and graphs of exponential functions.

Algebra teachers have for some time found themselves on the defensive when discussing the values of the subject with reluctant pupils, skeptical principals, and critical school patrons. These textbooks will do much to render unnecessary an answer to the question, "Of what use is algebra?" The books themselves answer the question.

H. E. BENZ

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Content in chemistry for the general student and for the potential scientist.—Secondary-school teachers of the physical sciences are becoming keenly aware of the need for presenting the principles of science in a way that will insure a proper functioning of this somewhat technical content in the lives of the potential lay citizen. At the same time there is a realization by those familiar with the demands of modern technology that a constant and ever-increasing replacement is necessary in the ranks of the trained technicians who are actively engaged in the development and control of the scientific processes fundamental to modern culture. To satisfy requirements in the training of both the future citizen in an essentially scientific environment and the skilled scientist largely responsible for our scientific culture, new educational practices and new teaching materials are much in demand. To meet the needs of the nontechnical layman, a new textbook in descriptive chemistry¹ has recently been made available; and, to safeguard the early training of the future scientist, a new textbook in practical chemistry² has appeared.

¹ Sherman R. Wilson, *Descriptive Chemistry*. New York: Henry Holt & Co., 1936. Pp. viii+312. \$1.20.

² Newton Henry Black and James Bryant Conant, *New Practical Chemistry: Fundamental Principles Applied to Modern Life*. New York: Macmillan Co., 1936. Pp. x+622. \$1.80.

The selection of content from the vast field of modern chemistry for use in the training of the future nontechnical scientist presents a difficult problem, which has been well handled by Wilson. The book is intended for use with a one-semester class in chemistry. The other semester of the third or fourth year of high school is expected to be given over to a treatment of the functional aspects of physics. Only such items from the field of chemistry as have been considered useful and important for the layman in interpreting his everyday environment have been included. Scientific but nontechnical discussions of air, fuels, foods, drugs, clothing, and building materials make up the major portion of the book. Extensive use of classroom demonstrations is suggested, and a considerable number of such useful demonstrations are described in detail for the guidance of the teacher. The illustrations used and the descriptive content are drawn consistently from the environment of the average pupil and should prove valuable in thus gearing in with his daily activities.

Among the special subjects in the field of physical science, chemistry has probably contributed more to the development of our technological processes than any other line of research activity. To include all recent material is quite impractical, and attempts to cover the field completely have led to overgrown textbooks. Black and Conant have made a serious attempt to select the items that provide a sound foundation and, at the same time, give to the student an insight into the more recent discoveries and practical applications which are now revolutionizing our culture and will do so to an even greater extent in the immediate future. In addition to a traditional treatment of the generally recognized fundamentals, new materials on topics such as modern types of glass, anti-knock fuels, vitamins, spectrum analysis of exploding fuels, and pyroxylin paints have been treated to give an understanding of the chemistry involved.

The organization of the Black and Conant textbook with respect to the order of topics and the treatment of each topic is traditional. The book opens with a historical introduction, followed by treatment of chemical and physical changes, oxygen, hydrogen, water, atomic theory, equations, sulphur, chlorine, etc. Each element is considered with regard to its occurrence, properties, preparation, uses, etc. A discussion of radio activity is postponed to the end of the book, and the matter of the physical property of gases is relegated to the Appendix. Care is taken by the authors, in their treatment of the physical structure of matter, to avoid too close a tie-up of valence with electrons because of the highly technical nature of this concept.

The almost simultaneous appearance of these two textbooks in chemistry, differing in organization, in the type of content selected, and in the style of presenting the material, reflects clearly the two schools of thought concerning the reorganization of the physical-science curriculum in the modern secondary school. During the transition period each book will have its special place in the field, but excellent use can be made of either as a reference book in the functional general course in physical science or in the traditional beginning course in chemistry. In both books the material is carefully selected, accurately explained from

the viewpoint of science, and treated in a style which will stimulate the interest of the pupil and develop an ability intended to be functional for participation in a technological society.

FRED ANIBAL

STANFORD UNIVERSITY

Plant and animal study from Grade I through Grade XII.—A new book¹ discusses methods of instruction and selection of content, gives an exhaustive bibliography in the field of biology, and presents a discussion of the biology teacher himself.

The Teaching of Nature Study and the Biological Sciences divides itself into five major parts, each treating a specific phase of the teaching of biology. The first deals with what the author terms "nature study" in the elementary school; the second, with "Science in the Junior High School"; the third, with "Biological Science in the Senior High School"; a fourth section is entitled "Educating the Individual at All Stages of Development" and "The Ideal Teacher"; and a concluding section, "Aids to Better Teaching," includes annotated bibliographic material dealing with all phases of the subject.

The first section, which comprises almost half of the content of the book, should be of interest to those readers who desire material on nature study in the elementary school. It includes nature playlets; nature games; suggestions for correlating the study of "nature" with the social sciences, art, reading, and language; and other tricks for the nature teacher. Much sound advice to the beginning teacher is written into the book.

The author favors a curriculum in the junior high school that is composed of "Personal and Civic Hygiene" in Grade VII; "General Science, embodying physical factors in [the] environment" in Grade VIII; and "General Biology" in Grade IX. A detailed outline is presented for the study of hygiene in the junior high school and one for biology in Grade IX.

The section on "Biological Science in the Senior High School" gives course outlines for the teaching of separate courses in botany and zoölogy and an "Outline Survey of the Animal Kingdom," which lists the principal phyla and classes, with characteristics and illustrative types. The outline as given does not agree in detailed organization with authorities in the field and unfortunately contains some inaccurate information; for example, on page 210 *Lumbricus* is placed in the class *Hirudinea* instead of in *Chaetopoda*.

Each section includes an extensive bibliography of readings closely related to the material discussed in the chapter. A concluding chapter, "Aids to Better Teaching," extends the bibliographies to include bulletins and pamphlets, visual-education helps, and addresses of publishers and supply houses. A most helpful part of the book is the bibliography of "Selected Magazine Articles,"

¹ Harrington Wells, *The Teaching of Nature Study and the Biological Sciences*. Boston: Christopher Publishing House, 1936. Pp. 334. \$4.00.

annotated and arranged under such headings as "Birds," "Plant Life," "Invertebrates," "Fish," and other biological topics.

The book is designed as a textbook in courses in methods and as a source-book of ideas and materials for teachers of biological science. To the progressive elementary-school teacher acquainted with present trends in the teaching of elementary science, the book will be helpful chiefly for the bibliography that it contains. Some of the material written for the elementary school—playlets, etc.—represents nature study at its worst. To the teacher of high-school biology, the presentation of suggested outlines of subject matter will be useful. Some of the drawings give inexact ideas because of inaccuracies in detail of lines.

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CURRENT PUBLICATIONS RECEIVED

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